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THE TOXEMIAS OF PREGNANCY, AND THE TREATMENT OF ECLAMPSIA*

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In this paper I shall consider only the toxemias of pregnancy as they occur during the last third of pregnancy, and particularly the treatment of eclampsia. I use the plural rather than the singular for the reason that the term toxemia is employed very loosely, and is used by many to include a group of conditions that vary from a trace of albumin in the urine without clinical symptoms to actual eclampsia, or even to acute yellow atrophy of the liver. Indeed, many go so far as to claim that the several conditions merely represent stages in the evolution of a single disease process.

For years, I have contended that such a conception is erroneous and tends to complicate rather than to clarify the question, as I believe that several distinct entities have to be dealt with and that any attempt to gather them into a single group will retard the eventual discovery of their respective causes. In the last edition of my textbook, I treated the subject under the following headings: nephritic toxemia, preeclamptic toxemia, eclampsia, and presumable toxemias. For years, I have studied these conditions with the greatest care both from the clinical and the pathologic point of view, and for the last seven years my associates, Everett D. Plass and H. J. Stander, have devoted the greater part of their time to the chemical and metabolic investigation of the problem, in the attempt to discover means of differentiating clinically between the several types, and if possible to obtain a clue as to their cause. Something has been accomplished along the former, but nothing, I am sorry to say, along the latter line.

Except when the patients come to autopsy, differentiation between the various types is not always possible during the stay in the hospital. Consequently, it occurred to me that valuable information might be obtained by restudying the patients at intervals after their discharge; and for the last five or six years we have attempted to get back as many of them as possible a year after delivery, and to follow their subsequent course as long as feasible after that. In 1924, Harris reported the results obtained and, generally speaking, found that a year after the eclamptic attack practically all of the women were normal so far as blood pressure and manifestations of renal involvement were concerned. On the other hand, the patients who had been discharged with a clinical diagnosis of chronic nephritis or nephritic toxemia uniformly presented signs of the disease at the return examination. Such observations were in accordance with our expectations; but when we came to analyze the results in the patients who had been discharged with a diagnosis of preeclamptic toxemia, we were surprised to find that a considerable proportion (60 per cent) presented signs of chronic nephritis, notwithstanding the fact that on discharge the blood pressure had fallen to normal and the urine was free from abnormal constituents. Up to that time we had regarded the so-called preeclamptic toxemia as the forerunner of eclampsia, and had held that its detection and treatment was the ideal method of preventing the development of the latter, and yet we found that the end-result of what we had considered the less serious process was actually graver than that following the more serious one. Such observations could only mean that we know less about preeclamptic toxemia than we had believed, and made it probable, in many instances in which such a diagnosis had been made, that we were actually dealing with chronic nephritis in a mild or larval form.

With this in mind, we have studied our cases of preeclamptic toxemia still more intensively, and have reached the conclusion that we had formerly included under that heading several conditions of radically different significance, and that closer analysis might enable us to differentiate between them more successfully. In May, 1926, Stander and Peckham gave the results of the clinical and chemical study of 120 toxemic patients recently studied in our service, and suggested the following classification: eclampsia, preeclampsia, chronic nephritis, eclampsia superimposed on chronic nephritis and low reserve kidney. Nothing need be said concerning the clinical characteristics of eclampsia or chronic nephritis, as they are well recognized clinical entities, but the other terms require some explanation. It might, however, be stated that eclampsia is distinguished at autopsy by the presence of characteristic liver lesions in the shape of necroses beginning in the periportal spaces and encroaching on the periphery of the lobules. Moreover, it should be recalled that when recovery ensues the return to normal is very prompt, and that the disease is unlikely to recur in subsequent pregnancies. After chronic nephritis, on the other hand, recovery is tardy, if it ocurrs at all, and the process tends to undergo exacerbation earlier and earlier in each successive pregnancy, so that it frequently offers an indication for contraceptive advice or even for sterilization.

Stander and Peckham have greatly limited the scope of preeclamptic toxemia, or preeclampsia, as they prefer to call it, and have transferred the great majority of cases, which were formerly so designated, to another category—that of low reserve kidney. They limit the former term to the relatively small group of cases in

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which the patient is acutely ill, presents a very high blood pressure and albumin content of the urine, suffers from amaurosis and epigastric pain, presents a blood chemistry picture identical with that of eclampsia, and appears on the verge of convulsions, whose outbreak can be prevented only by the promptest possible termination of pregnancy consistent with safety. In other words, it is essentially eclampsia before the development of convulsions and coma. Defined in this way, preeclamptic toxemia is a relatively rare condition and does not exceed 5 per cent of all late toxemias, while the great bulk of the cases that were formerly so designated fall into the group of low reserve kidney.

In the latter condition, which may be due to congenital causes or to such factors as may have lessened the number of functioning glomeruli without producing a chronic nephritis, the kidney reserve has become so reduced that, while it suffices for the usual conditions of life, it breaks under the strain of the last months of pregnancy. That it does not lead to chronic nephritis is shown by the fact that the condition may or may not recur in subsequent pregnancies; and if it does recur, the symptoms are usually no more severe than on the previous occasion. In patients presenting this condition, the blood pressure is not greatly elevated, rarely exceeding 150 systolic and 90 diastolic, the albumin content varies between a trace and a couple of grams per liter, and, while the patient may present edema, headache and more or less malaise, the condition improves with rest in bed and a restricted diet, and rarely if ever eventuates in eclampsia. Following delivery, there is a prompt return to normal and any trace of the condition is not detectable until a subsequent pregnancy occurs, when it may or may not become manifest in the latter months. Change does not occur in the chemical constitution of the blood, and the phenolsulphonphthalein output is not altered.

The category eclampsia superimposed on chronic nephritis means what its name implies, and is made up of a small group of patients suffering from chronic nephritis who later develop eclampsia. In general, such patients are more ill than those with uncomplicated eclampsia; they present an unusually high blood pressure and an excessive amount of albumin. They are particularly interesting from two other points of view: first, that chemical examination may give evidence of marked retention of nonprotein nitrogen, and, second, that after recovery from the acute attack the symptoms of renal insufficiency persist. Generally speaking, it is safe to conclude that, whenever after an eclamptic attack the blood pressure remains permanently elevated and a trace of albumin persists in the urine, one has had to deal with this combination and not with a chronic nephritis originating from the eclampsia.

It is only fair to say, however, that while this new classification has helped materially, it has not solved all our problems, and with the patient in bed before us it is not always possible to make the differentiation immediately, nor is it always easy at autopsy. Generally speaking, the diagnosis of well marked preeclampsia is readily made from the presence of characteristic symptoms. On the other hand, it is not always possible to differentiate between the low reserve kidney and chronic nephritis before delivery. In such cases, the previous history may be of great assistance, while the demonstration of nitrogenous retention in the blood or the existence of albuminuric retinitis speaks decisively for chronic nephritis; but when such signs are absent, differentiation may be impossible until the end of the puerperium, when a very gradual fall in blood pressure and the persistence of a trace of albumin and casts in the urine will speak strongly against the low reserve kidney.

Similarly, it is not always possible to distinguish between uncomplicated eclampsia and one engrafted on a chronic nephritis until recovery ensues or an autopsy is had. In general, it may be said that the absence of albuminuric retinitis and of nitrogenous retention in the blood speak in favor of the former, but the latter cannot be excluded until several months later, when we find that the patient is either perfectly normal or presents signs of chronic nephritis. It is for this and similar reasons that we have recently inaugurated the custom of having our toxemic patients return to the clinic for a day two months after delivery, when they are carefully restudied with particular emphasis on the clinical signs and the chemical changes of the blood and urine. It is as yet too early to state what may be accomplished by such reexaminations, but we have already learned that it frequently necessitates a radical revision of the original diagnosis, and we hope that it will eventually throw still further light on our problems.

TABLE 1.—*Usual Range of Certain Constituents of the Blood*

	Normal Nonpregnant	Normal Pregnancy	Nephritic Toxemia	Eclampsia
Nonprotein nitrogen...	30-35	25-30	35-100	25-35
Uric acid.....	2.0-3.5	2.0-3.5	3.5-9.0	4.0-12*
Blood urea nitrogen...	13.4	13.3	13	13.4
Sugar.....	70-100	70-100	70-100	120-185*
Lactic acid.....	20-35	20-35	35-80	50-200*
Inorganic phosphorus.	1.5-3.0	1.5-3.0	1.5-3.5	2.5-3.5*
Carbon dioxide.....	55-65	40-50	40-50	15-55

* Radical changes.

Repeated reference has been made to the chemical changes in the urine and blood, and the time has come to say a few words as to their significance. Generally speaking, it may be said that the most important features in the examination of the urine consist in ascertaining its amount for the twenty-four hours, the determination of its albuminous content in grams per liter, and the presence or absence of tube casts. We have learned comparatively little of value from its accurate chemical analysis; and while we still determine its total nitrogen, the percentage of the urea and ammonia nitrogen to the total nitrogen, and occasionally the chloride content, it must be confessed that it is done rather for the sake of completeness than for any definite information it affords. In our earlier work, such estimations were undertaken in the hope that they might reveal the retention of certain substances which would give a clue to the mode of production of the toxemias and some indication for their treatment; but such hopes have long since proved illusory.

Likewise, in the early days the chemical study of the blood was undertaken, first, to ascertain the changes which its constituents undergo during normal pregnancy, and secondly, in the hope that some form of nitrogenous retention would be discovered which would facilitate diagnosis and be of prognostic value in toxemic patients. Table 1, which shows the usual ranges for certain constituents of the blood as found in our laboratory, will give an idea as to what extent these ideals have been realized. The first two columns show the normal conditions, and on comparing the nonpregnant and pregnant woman, respectively, it is seen that there is a slight diminution in the amount of nonprotein nitrogen and a slight decrease in the carbon

dioxide combining power in the latter. There is, however, no evidence of nitrogenous retention, but rather the reverse, and this is associated with a moderate acidosis, as indicated by the lowered combining power for carbon dioxide, to which Hasselbalch and Gammeltopf first directed our attention.

No figures are given for the low reserve kidney, but as it is accompanied by no appreciable change, the data in the normal column are applicable to it. Passing to the third column, it is seen that radical changes are present in nephritic toxemia, and that the most important consists in a marked retention of nonprotein nitrogen, which is accompanied by a considerable rise in uric and lactic acid. If, in the normal pregnant woman, one constructs a fraction in which the blood urea nitrogen is the numerator and the nonprotein nitrogen the denominator, one obtains a constant which represents the normal relation but which becomes lower and lower, the greater the retention of the nonprotein nitrogen.

The fourth column represents the conditions in eclampsia, and the five items marked by a star present radical changes, while the remaining two are unchanged. It will be noted in the first place that there is a marked increase in the uric acid content, which is followed by equally striking changes in the amount of sugar and lactic acid, and by a lesser change in inorganic phosphorus, while at the same time in extreme cases the carbon dioxide combining power is reduced to such an extent as to offer a distinct menace to life from acidosis. In general, it may be said that the changes noted in eclmapsia are very striking and do not in any way bear out the original supposition that it is associated with nitrogenous retention, but on the other hand indicate the existence of a profound disturbance of metabolism. It would lead too far afield to attempt to theorize concerning the significance of these changes, and even if I possessed the ability to do so, it is doubtful whether my deductions would meet general approval. I shall therefore merely state that the figures will be referred to again when the question of treatment is taken up.

Thus far, it must be admitted that with the exception of the nephritic type, neither pathologic study nor chemical analysis of the blood and urine gives any clue to the ultimate cause of eclampsia or any of the other forms of late toxemia of pregnancy, and that in all probability it is due to the formation of some chemical substance (toxin?) which leads to a profound disturbance of metabolism, accompanied by certain organic lesions; but what it is, or whether it originates primarily in the child, the placenta or the mother is not known. That the supposititious substance leads to an increase in the permeability of the smaller vessels and capillaries is probable, especially in view of the almost constant presence of edema; and such a view receives additional support from Starling's theory that the rise in blood pressure is due to anemia of the vasomotor centers at the base of the brain, resulting from edema of the surrounding tissues. Furthermore, it is possible that the quantity of toxin produced, or the resistance offered to its action, must be susceptible to pronounced variations, as is evidenced by the occurrence of so-called intercurrent eclampsia, and the occasional normal progress of pregnancy after its cessation.

Whatever the cause may be, it is apparent that it will not be discovered by theorizing, but solely by the patient and intelligent application of approved means of research by devoted investigators. Furthermore, it is clear that the treatment must remain empiric until the problem is solved, and in the meantime it is our duty so to study the natural history of the disease and its manifestations that we may treat it with the least possible danger to the patient, as well as with the least possible personal pride.

TREATMENT

This being the case, the most effective treatment of eclampsia must consist in prevention. For that reason the greatest possible extension of intelligent prenatal care is essential to the early recognition and treatment of the several varieties of the toxemia of pregnancy. This is not the place to insist on the necessity for the frequent routine examination of the urine, the determination of the blood pressure, and the general supervision of the physical condition of the patient. Suffice it to state that if this duty is conscientiously performed, the incidence of and mortality from the toxemias will become enormously reduced. I am not, however, sufficiently optimistic as to assert that eclampsia can be done away with entirely, and an experience during the past year has served to confirm this conviction. In this instance, a patient had been conscientiously followed during an apparently normal pregnancy and all tests were negative at her last visit; yet she was admitted to the clinic three days later in eclampsia and died undelivered. Notwithstanding this experience, no one is a more enthusiastic advocate of prenatal care than I; and since the physical accommodations of our clinic have been adequate for the hospitalization of all patients requiring prophylactic treatment, the incidence of eclampsia has been greatly reduced, and, when it occurs in our own patients, it is usually of so mild a type as to be readily amenable to treatment; on the other hand, practically all of the serious cases occur in neglected patients who have been sent to the clinic by physicians or midwives after the outbreak of the disease.

Although the main object of this part of the paper is the discussion of the treatment of actual eclampsia, a few words may not be amiss concerning the treatment of the other types of toxemia. As has already been indicated, the most serious of these is the preeclamptic variety, or preeclampsia. In this, the outbreak of convulsions and coma is imminent, and the part of wisdom is to forestall the eclamptic attack, if possible, by the earliest termination of pregnancy consistent with the safety of the patient. In such circumstances the choice of procedure will depend on the condition of the cervix. If it is soft or already partially dilated, the modified Stroganoff treatment is begun, and as soon as the patient has come under its narcotic influence, a bag is inserted without anesthesia. On the other hand, if the cervix is rigid we do not hesitate to resort to cesarean section with the limitations concerning the choice of anesthesia to which reference will later be made. At this point, it may be added that it is my conviction that only in such circumstances should this operation be considered in the treatment of the toxemias, as I have come to regard it as greatly increasing the danger of actual eclampsia.

In the treatment of nephritic toxemia, or the complication of chronic nephritis by pregnancy, I have become more and more radical, and advocate the termination of pregnancy as soon as the condition becomes serious, unless for the sake of the child the patient is anxious to face the serious risks which delay may entail. My reason for this is fourfold: (1) Rest in bed and dietetic treatment rarely have the desired

result; (2) the child usually dies before the period of viability is reached; (3) the patient is frequently exposed to serious immediate danger, and (4) the continuance of pregnancy greatly adds to the gravity of the underlying renal condition, and thereby materially shortens the patient's life should she recover from the immediate attack. Consequently, if rapid improvement does not occur under conservative treatment, I terminate the pregnancy by the introduction of a bougie, and afterward give such contraceptive advice as may be necessary; and if it seems inadvisable or proves ineffectual, I do not hesitate to terminate a subsequent pregnancy by operative means, and at the same time to effect sterility by the method best suited to the individual case.

On the other hand, since we have learned that the low reserve kidney rarely eventuates in eclampsia, responds fairly satisfactorily to conservative treatment, and after the conclusion of pregnancy has no effect on the future health of the patient, we have become more and more conservative in its treatment. In such cases, the patient is put to bed, placed on a bland diet and watched. In many instances this is followed by such marked improvement that the patient can be discharged and eventually is delivered at term. Other patients respond less satisfactorily, and, after showing a certain amount of improvement, tend to remain in statu quo. In such circumstances the pregnancy can usually be carried to such a stage that the induction of labor offers a fair prospect for the birth of a child reasonably fitted for the contest of life. On the other hand, an occasional patient shows no improvement, but on the contrary the albumin content of the urine remains constantly at 2 or 3 Gm. to the liter. In such cases, unless the blood pressure presents an alarming rise, it is usually permissible to allow the pregnancy to progress to the period of viability, and then to induce premature labor. If this is not done, the patient may pass into the preeclamptic state with its accompanying dangers.

I approach the discussion of the treatment of actual eclampsia with considerable hesitation, for the reason that my views concerning it are still in a state of flux, and on the whole are negative rather than positive. My material consists of 275 cases which have occurred from the opening of the service to March 31, 1926. These are divided into two series of 110 and 165 cases, respectively, according as they occurred prior to or after 1912. Up to that date, in accordance with the prevailing practice, the primary object in treatment was the promptest possible delivery of the patient, with the result, if the cervix was not fully dilated, that accouchement forcé, or vaginal or abdominal section was frequently resorted to. Chloroform was still employed as the anesthetic, and delivery was followed by the employment of such therapeutic procedures as liberal bleeding, sweating, drastic purgation, the free use of morphine, and the attempt to dilute the suppositious poison by the subcutaneous or intravenous administration of saline solution.

The results were not satisfactory, and when I came to analyze them in the eighty-five cases of antepartum and intrapartum eclampsia, I found that one out of every four women in the first series had died (24.89 per cent). For some years previously, Stroganoff had been reporting wonderful results obtained with morphine and chloral, and by waiting until the cervix had become fully dilated before resorting to delivery. At that time, I could not bring myself to believe that his results were attributable to the treatment employed, but I was obliged to admit that they were better than ours, and I was inclined to attribute them, if true, to the avoidance of the trauma and shock incident to radical operative delivery.

Since 1912, our practice has become more conservative, and we have tended more and more to defer operative intervention until the cervix has become completely dilated, when labor is completed by version and extraction or by low forceps. Furthermore, we gradually restricted our therapeutic activities and came to rely more and more on free venesection (from 500 to 1,000 cc.) and morphine. Such a practice was easy to follow in the relatively mild cases, but became more difficult if prompt improvement did not occur, for with seriously sick patients it was difficult to control the activities of energetic associates and assistants. Consequently, accouchement forcé and cesarean section continued to be done occasionally, until I was prepared to lay down the strict rule that all cases must be treated absolutely conservatively. This was not done until 1922, but since then printed regulations have hung on the wall in the delivery suite, which no one has authority to change except myself and the associate responsible for the care of such patients. Moreover, my associate Stander was personally able to follow the work of Stroganoff in Petrograd three years ago, and while he was not convinced that the results were all that the latter claimed, yet he felt that his method, with certain modifications, was worthy of trial, and the following regulations were put into effect in October, 1924, and are still in force:

1. On admission:
   (*a*) To be placed in a quiet darkened room and disturbed as little as possible.
   (*b*) To have a special nurse continuously until definitely out of coma.
   (*c*) To have one-fourth grain (16 mg.) of morphine hypodermically immediately.
   (*d*) To be catheterized, examined medically and obstetrically, and bled for 200 cc. under nitrous oxide anesthesia, if conscious.
   (*e*) To be placed on one side, with the foot of the bed elevated so long as coma persists. Mucus to be swabbed from the pharynx as it collects.
   (*f*) To have water freely while conscious. If the patient cannot drink on account of coma or lack of desire, the intravenous administration of 500 cc. of 5 per cent glucose solution should be considered.
   (*g*) Not to be delivered until after the cervix is fully dilated, and then by the simplest operative means, unless spontaneous delivery seems imminent.
   (*h*) No chloroform to be used.
   (*i*) Chemical assistants to be notified as soon as the patient is admitted, so that the necessary observations can be made.
2. One hour after admission:
   If comatose, 2 Gm. of chloral hydrate to be given in 100 cc. of physiologic sodium chloride solution and the same quantity of milk by rectum. If conscious, the chloral can be administered by mouth in 100 cc. of milk.
3. Three hours after admission:
   One-fourth grain (16 mg.) of morphine hypodermically.
4. Seven hours after admission:
   Two grams of chloral hydrate as above.
5. Thirteen hours after admission:
   One and five-tenths grams of chloral hydrate as above.
6. Twenty-one hours after admission:
   One and five-tenths grams of chloral hydrate as above.

7. General directions:
   (*a*) While eclamptic patients are under treatment, the assistants and nurses must insist on the greatest possible quiet.
   (*b*) Catharsis, sweating, or venesection in excess of 200 cc. must not be employed.
   (*c*) No change to be made in the schedule unless authorized by Drs. Williams or Stander.

It should be noted that this schedule differs in several particulars from that of Stroganoff, notably in the omission of chloroform, in the use of glucose injections, and in the routine withdrawal of blood. It should be understood that the latter is not for therapeutic purposes, but is solely for obtaining a sufficient quantity for certain routine determinations, as well as for purposes of investigation.

TABLE 2.—*Results in 275 Cases of Eclampsia*
(110 up to Dec. 31, 1911; 165 from 1912 to March 31, 1926.)

	Series 1		Series 2		% Deaths	
	Cases	Deaths	Cases	Deaths	Series 1	Series 2
Antepartum:						
Mild	33	5	30	0	15.1	0.0
Severe	28	10	54	11	35.7	20.4
Intrapartum:						
Mild	16	2	24	1	12.5	4.17
Severe	8	4	21	5	50.0	23.8
Postpartum:						
Mild	15	0	24	0	0.0	0.0
Severe	10	4	12	5	40.0	41.6
Total	110	25	165	22	22.8	13.3

Table 2 shows the results obtained in the two series, and clearly indicates the superiority of conservative over radical treatment. In the table are sixty-one cases of postpartum eclampsia, and, including them, the mortality was 22.8 and 13.3 per cent in the two series, respectively, while the results following postpartum eclampsia were practically identical in the two series.

It will be noted that a distinction is made between mild and severe cases; this was done following the example of Eden, who, analyzing the several reports on the treatment of eclampsia made to the British Congress for Obstetrics and Gynecology in 1922, stated that gross figures alone give very imperfect information as to the value of treatment, as it varies greatly according to the type of the disease. With this in mind, he classified as severe all classes which presented two or more of the following six conditions: (*a*) persistent coma; (*b*) pulse rate more than 120; (*c*) temperature more than 103; (*d*) more than ten convulsions; (*e*) urine containing sufficient albumin to coagulate solidly on boiling, and (*f*) the absence of edema. We have applied the same criteria, except that we have substituted an albumin content of 10 Gm. per liter by Esbach for the boiling test.

It is unnecessary to analyze the table more closely, as a glance will suffice to show that in every rubric the mortality is lower in the second series, with the exception of severe postpartum eclampsia, but in that instance the difference is negligible, as one would expect from the fact that the treatment remained relatively the same in the two series.

A still clearer idea of the improvement in results may be obtained from table 3, in which only the cases of antepartum and intrapartum eclampsia are included. This shows that the gross mortality has fallen from 25.9 to 13.2 per cent. In other words, a reduction of 1.96 times, and this difference is rendered still more striking when the mild and severe cases are considered separately. Thus, in the former, the mortality has fallen from 14.2 to 1.9 per cent, and in the latter from 38.8 to 21.3 per cent; or, to express the difference more graphically, it may be said that in the second series the results in the mild cases were 7.5 times, and in the severe cases 1.8 times better than in the first series.

On considering these figures, it seems fair to conclude that the substitution of conservative for radical treatment has so reduced the mortality of mild eclampsia as to render it an almost negligible condition, whose mortality will scarcely be susceptible of further reduction. On the other hand, while it has served to reduce by one half the mortality of the severe type, a death rate of 21.3 per cent still remains, and urgently demands improvement. In other words, it appears that in mild antepartum and intrapartum eclampsia treatment by narcotics and waiting until after the completion of the first stage of labor before attempting delivery gives almost ideal results, while similar treatment in severe cases is far from satisfactory, but is nevertheless greatly superior to that obtained by radical treatment in the past.

Is it possible to reconcile our results with the mortality of 2.5 per cent reported by Stroganoff? I think so, as it appears from Stander's analysis of his material that the great majority of his cases were mild in type and occurred in the women who were awaiting delivery in his clinic, and who therefore could be treated immediately after the outbreak of the first convulsion. Moreover, as he rarely had to deal with the severe type, his material is not comparable with ours, in which most patients are sent in from the outside. Indeed, our experience goes to show that with increasing efficiency in prenatal care relatively few cases of eclampsia develop in our own material, and they are almost entirely of the mild type, whereas we receive an increasing number of severe cases from the outside.

It must be admitted that in a certain number of the neglected severe cases the patients must inevitably die no matter what may be done for them, but at the same time it is probable that they should show better results than I have as yet been able to obtain, and our problem is as to how it can be brought about. Theoretically, it would appear that fewer deaths might result if delivery could be effected at the opportune time, and the question is how to recognize its necessity and to determine by what means it should be accomplished. Our experience in the first series showed that radical delivery under the usual anesthetics gave much worse results than the conservative treatment now in vogue, and recent studies in our clinic by Stander [1] on the effect of anesthesia on the chemical constitution of the blood may possibly offer a clue toward the solution of the problem. He found that all general anesthetics —chloroform, ether, nitrous oxide and ethylene—after as short a period as fifteen minutes produce changes in the blood suggestive of those noted in eclampsia; namely, a definite increase in uric acid, sugar, lactic acid and inorganic phosphorus, and a decrease in the carbon dioxide combining power of the blood. These changes are shown in table 4, and clearly indicate that

TABLE 3.—*Results in Antepartum and Intrapartum Eclampsia*

	Series 1		Series 2		% Deaths		Reduction, Times
	Cases	Deaths	Cases	Deaths	Series 1	Series 2	
Mild	49	7	54	1	14.2	1.9	7.5
Severe	36	14	75	16	38.8	21.3	1.8
Total	85	21	129	17	25.9	13.2	1.96

1. Stander, H. J.: Am. J. Obst. & Gynec. **12**: 633 (Nov.) 1926.

the administration of the usual anesthetics even for a short time tends to accentuate the blood changes that characterize eclampsia, and thus superimpose an additional toxemia on that already existing. Such observations render it probable that in the radical treatment of severe cases of eclampsia it is not so much the operation, per se, as the accompanying anesthesia that does harm by converting an already serious condition into a fatal one.

TABLE 4.—*Usual Range of Certain Constituents of Dog's Blood Under Normal Conditions and Under Anesthesia*

	Normal	Anesthesia	Change
Nonprotein nitrogen	40-55	40-55	None
Uric acid	0.0-0.9	0.9-2.5	Increase
Blood urea nitrogen	12-18	12-18	None
Sugar	70-100	150-300	Increase
Lactic acid	12-20	18-35	Increase
Inorganic phosphorus	1.5-3.0	2.0-4.0	Increase
Carbon dioxide	45-60	30-45	Decrease

Too short a time has elapsed since the recognition of these dangers for us to have devised other methods of anesthesia, but it has occurred to us that some form of local or spinal anesthesia may solve the problem, more particularly as Stander has also shown that in dogs the administration of amounts of cocaine which would never be considered in human beings is not accompanied by any recognizable change in the chemical constituents of the blood. Whether improved results will follow the treatment of severe eclampsia along such lines, no one can foretell, nor is it possible to predict what will prove the ideal procedure for terminating the pregnancy. I shall, however, experiment along such lines with my serious cases and hope that in the not too distant future I may be able to report encouraging results.

TABLE 5.—*Fetal Mortality*

	Series 1		Series 2		Percentage	
	Cases	Deaths	Cases	Deaths	Series 1	Series 2
Antepartum	61	40	84	58	65.5	69.0
Intrapartum	24	9	45	15	37.5	33.33
Total	85	49	129	73	57.6	56.6

Thus far I have said nothing of the fetal mortality, but table 5 will make it possible to dispose of the question in a few words. This shows that the mortality was practically identical in the two series, and indicates that conservative treatment at least does no harm. At first glance the results are very discouraging; but when it is recalled that in a considerable proportion of cases the disease occurs before or shortly after the period of viability is reached, it is apparent that a certain mortality is inevitable. Moreover, a great part of the fetal deaths occurs in the severe cases, and in many of them has taken place before the patients come into our hands. The advocates of radical treatment assert that the chances for the child will be greatly increased by cesarean section, but in my opinion this is based on doubtful reasoning as very few children are lost without it in mild cases, while in severe cases experience teaches that under present conditions cesarean section adds materially to the danger to the mother, and I agree with Eden's verdict that after accouchement forcé it is the least appropriate treatment of eclampsia.

One of the important lessons which I have learned from my experience with conservative treatment is that the termination of pregnancy, or at least the death of the fetus, is not essential to the arrest of the disease. Thus, in sixteen of the eighty-four cases of antepartum eclampsia in the second series, I have observed that under the influence of narcotic treatment the convulsions cease, the patients come out of the coma, and all symptoms clear up or at least show marked improvement. The blood pressure may fall to normal, the albumin and casts disappear, and after a variable length of time, in one instance as long as twenty-two days, spontaneous labor occurs without any recurrence of the toxemic symptoms. Unfortunately, this is not the general rule, as in most cases, following a temporary improvement, the symptoms once more increase in severity and become so threatening as to demand the induction of labor. This, however, is not so serious as it sounds, for it enables us to cope with the condition by a relatively simple procedure instead of resorting to radical operative intervention with its associated anesthesia while the patient is in the eclamptic state.

Lichenstein was the first in recent years to direct our attention to this so-called intercurrent eclampsia, and many of his cases, as well as several of those in our series, followed free venesection instead of treatment by narcotics. Such observations are of great importance, as they teach that the eclamptic outbreak is not inevitably due to the existence of a living pregnancy, but may be due to transient conditions, and if they can be temporarily overcome, the normal status becomes reestablished, so that pregnancy may continue without further complication. What it means we have yet no means of knowing, and our ignorance will probably persist until the actual cause of the disease is discovered; but it indicates beyond peradventure that in certain instances at least the termination of pregnancy is not essential to the cure of the disease.

In conclusion, it seems fair to say that in the past not a few of our patients perished who would now recover under conservative treatment, so that pending the discovery of the actual cause of eclampsia, which will inevitably be followed by rational instead of empiric treatment, we should constantly bear in mind the old motto, primum non nocere.

CONCLUSIONS

1. In mild as well as severe cases of eclampsia, the results are better under conservative than under radical treatment.

2. In mild cases, a modified Stroganoff technic gives almost ideal results.

3. In severe cases, such treatment gives twice as good results as more radical treatment, but is still followed by a mortality so high as urgently to demand improvement.

4. It appears that all the generally used anesthetics superimpose an additional toxemia on that associated with the disease.

5. Consequently, the operative treatment of severe eclampsia will probably not show better results until some nontoxic anesthetic is discovered.

6. It appears that, after accouchement forcé, cesarean section performed under the usual general anesthetics is the worst treatment for eclampsia.

7. The necessity for still greater extension of prenatal care is the most efficient means for the prevention of eclampsia.

8. It is necessary to realize that toxemia of pregnancy is a vague general term, and that we have to deal with several types and not with a single one.

9. The treatment of eclampsia must remain empiric and relatively unsatisfactory until the actual cause of the disease is discovered.

LIGHT HOOKWORM INFECTION

SHOULD PATIENTS BE "ADVISED THAT THEY ARE CARRIERS BUT DO NOT NEED TREATMENT"?

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One of the most important, suggestive and valuable factors in scientific work is a difference of opinion on a technical subject, for this leads to discussion and to advance of knowledge.

Recent literature on hookworm disease contains certain views which are exceedingly interesting; some of these represent distinct contributions to knowledge; some, however, seem to call for very careful consideration and reconsideration from points of view apparently not studied by their authors.

In comparing some of the newer with some of the older opinions, it is well to hold in mind an important premise; namely, that twenty years ago a person could stand on a downtown street corner, almost any Saturday afternoon (when many of the county inhabitants visit the cities and towns), in Wilmington, Raleigh, Charleston, Augusta, Macon or Meridian, and within two or three hours could observe from two to ten or more severe hookworm cases in the stage usually referred to as "dirt-eaters"; but the campaign against the disease has so reduced the frequency of severe cases that it would be more difficult to repeat this experience today. Accordingly, the person who has entered hookworm work recently, under present conditions, may possibly not adjust himself immediately to the older literature.

In earlier days, the general view was that the smear method of microscopic examination was a very practical one; if this test was negative a person might still harbor a few hookworms, but from a practical point of view the person whose reaction was positive by this method was assumed to be infected with probably a greater number of hookworms and therefore in his case hookworm treatment would do more good than in the negative case. It was an instance of directing efforts in the line of the potentially greatest good; namely, a practical application of the principle that there were carriers and patients—a principle known many decades and not a new thought, as might be assumed by one familiar only with certain recent literature.

Practical clinical experience has taught, however, that there were persons with symptoms of obscure origin, such as insomnia, headache, constipation or amenorrhea, and that many of these cases cleared up clinically when treated for hookworm infection. This was one of the important factors in leading to the adoption of the more complicated but of course more exact methods in the microscopic examination.

In the older days, physicians were influenced by the principle that their problem was to relieve and to prevent indirect as well as direct suffering, and quite naturally symptoms brought out by clinical study were considered most important.

The more recent tendency may be described as mathematical rather than clinical: A given number of cases is studied on the basis of mathematically measurable data, as, for instance, blood counts or hemoglobin percentages; these patients are treated and the collected hookworms are counted; it is thus shown that an average (or possibly a group) mathematically measurable blood picture x corresponds to an average (or a group) y number of hookworms (in these particular persons). The next step is to count the eggs in a given amount of feces in certain cases, to expel the hookworms, and to adopt a formula that z hookworm eggs (produced by the ovigerous female worms) in a given amount of feces represent y hookworms (males, females, immature, and old aged) in the intestine which correlate with the mathematically measurable picture x.

Next it is found that the egg count in diarrheic stools does not correspond to that of formed feces, but for practical purposes should be reduced to that of formed feces by a given formula m. Then it is found that the egg count on a single day is not free from mathematical error and that it should be made on a seventy-two hour basis. [For instance, suppose a farm sells 100 hens' eggs on Monday, how many roosters, hens and chickens are there on that farm?]

The final outcome is that if in an egg count (on a seventy-two hour basis) reduced to a formed feces basis (by a formula) we find z eggs in a given amount of feces, we are to conclude that the person furnishing the sample has y hookworms, and that on the basis of further formula his blood count and other mathematically measurable data are x and therefore this case is or is not to be treated for hookworms on the basis of still another mathematical formula. The foregoing is not sarcasm; it is a summary of the various steps in the evolution of the mathematical method.

Far be it from me to underestimate the real value of the mathematical work that has been done on hookworm disease. On the contrary, I have followed it with intense interest. But the practical question forces itself forward: Are these intensely interesting mathematical studies of more practical and reliable value in conserving health than were the old fashioned methods of clinical observation plus the smear method of diagnosis?

In a recent publication, Smillie and Augustine [1] definitely state that "all persons with light infestations may be advised that they are carriers but do not need treatment. Hookworm treatment need be administered only to those with moderate or heavy infestation."

Their classification is:

1. No hookworms.
2. Very light infestations (i. e., infections), from one to twenty-five hookworms.
3. Light infestations (i. e., infections), from twenty-six to 100 hookworms.
4. Moderate infestations (i. e., infections), from 101 to 500 hookworms.
5. Heavy infestations, from 501 to 1,000 hookworms.
6. Very heavy infestations, from 1,001 to 3,000 hookworms.

Here is very definite, unambiguous, clinical advice based on definite, unambiguous, exact mathematical units. If the infection is estimated (as per formulas) to be 101 or more hookworms, the person is a patient (regardless of symptoms) who should be treated; but if it is estimated to be 100 or less, the person (regardless of symptoms) is to be advised that he or she is a carrier and does not need treatment. Thus, reduced to a mathematical formula, one worm makes the difference between a patient and a carrier.

The question as to whether a person is a carrier or a patient is of course identical whether considered from the clinical (practitioner's) or the administrative (health officer's) standpoint.

1. Smillie, W. G., and Augustine, D. L.: Intensity of Hookworm Infestation in Alabama, J. A. M. A. **85**: 1958-1963 (Dec. 19) 1925.

Confining the present discussion to this one single mathematical point, I am unable to harmonize the therapeutic policy with either my personal clinical experience or my administrative judgment.

Let it be recalled that the formulas respecting the egg counts, worm counts and blood counts are not claimed, even by Stoll, to be mathematically exact to the decimal point, but that in the last analysis they represent estimates, however approximately accurate these estimates may be.

Let it be assumed that the formulas make the worm count 100 or 101, as the case may be, and that a month later the person contracts typhoid. The hookworm infection might easily hold the balance of power which determines the outcome of the typhoid attack. If the physician has treated, on the basis of the 101 estimate, he has safeguarded the patient, so far as the hookworm factor is concerned; but if on basis of the 100 estimate, the patient has been advised that he is a carrier and does not need treatment, the physician would scarcely wish to risk hookworm treatment during the typhoid attack, and he would have the consciousness of having left the patient with an unnecessary handicap in his fight against typhoid.

A combination of hookworm infection with tuberculosis is not rare; according to the mathematical argument, it is clear that 100 hookworms are to be ignored in tuberculosis, but that 101 hookworms are to be treated regardless of tuberculosis. Yet in tuberculosis we have a condition in which we try to give the patient every possible advantage of fresh air, diet and rest.

Or let the argument be based on uncomplicated hookworm infection. The reduction of the case to a mathematical formula which considers the number of worms as the variable factor but the constitution of the patient as a constant factor does not square itself with clinical experience. For instance, I have seen some patients with from 100 to 2,000 or more hookworms in whom symptoms were less pronounced than in some other patients in whom the worm count (in ward treatment) was less than 100. The following is a case in point:

A school girl, aged about 16 years, was given a diagnosis of hookworm disease solely on the basis of clinical study; repeated microscopic examinations (smear method) failed to confirm the diagnosis, and ward treatment resulted in the recovery of less than twenty hookworms. Following treatment, the patient showed improvement, obvious objectively in complexion and subjectively in various ways, including more regular menses and decreased constipation.

This patient, considered according to the old fashioned method of attaching importance to clinical study, would today (on the basis of mathematics) be advised that she did not need treatment—in other words, unmathematical symptoms like constipation, headache, and amenorrhea are not accepted as of importance.

The following is another case in point:

During the early part of the World War, a southern naval unit was quartered on my reservation. One sailor complained of chronic insomnia and on this account he asked to be relieved of drill duty after standing guard. A preliminary clinical diagnosis of light hookworm infection was confirmed microscopically by the smear method. Treatment for hookworms promptly cured his insomnia, and he became a good sailor.

Numerous other instances could be cited, but these two will suffice to bring out the fact that there are points of view regarding hookworm disease other than those expressed by the two authors quoted. As for the particular point at issue, I am persuaded that there is a distinct possibility of overemphasizing the adding machine and the slide-rule as clinical instruments, and that the day of the stethoscope and of study of symptoms is not entirely past history. The view of Smillie and Augustine is interesting and deserving of discussion; studied in the light of the medical literature and of my personal experience, their advice as to basing therapeutic policy on cold statistics predicated on averages or means instead of on symptoms in the individual case is not free from objection—as obtains also for certain other of their conclusions not considered in the present manuscript.

Statistics are not only interesting but valuable, and, unfortunately, sometimes dangerous. The average and the mean are important additions to knowledge, but unless read in connection with the extremes (maximum and minimum), the possibility of erroneous deduction is not excluded. In clinical work the maximum and the minimum are just as important as are the average and the mean. Interesting and valuable as are recent mathematical studies in hookworm disease, it is wise for us not to destroy their value by pushing them to (what appears to me at least) an illogical extreme.

In a paper [2] published two months later, Smillie and Augustine modify their statistics of the carrier stage as follows:

The conclusion is justified, therefore, that an average infestation [i. e., infection] of from thirty-five to fifty hookworms has no measurable effect on the normal growth and development of the child. To be on the conservative side, however, let us reduce to twenty-five the maximum number of worms which may be harbored without ill effect. Any child harboring twenty-five hookworms or less can be considered an economic cure. He may be regarded as a carrier, not as a case of hookworm disease.

This modification does not meet the technical point under consideration. My fundamental premise is that since infections produce both objective symptoms (some of which are "measurable") and subjective symptoms (many of which are not "measurable"), an estimated number of worms is not final as a safe criterion in classifying persons into groups as carriers and as patients, even on the part of the health officer; for his dictum that a given person is a carrier and does not need treatment may embarrass the practitioner in following out the therapeutic policy dictated from his clinical point of view, and lead to local dissension between practitioner and health officer.

2. Smillie, W. G., and Augustine, D. L.: Hookworm Infestation, Am. J. Dis. Child. **31**: 151-168 (Feb.) 1926.

Intellectual Stress and Hyperthyroidism.—It would be interesting to speculate as to the reason for the heavy incidence of hyperthyroidism in America. Is it due merely to a continental shortage of iodine, or is it due mainly to the strain of the strenuous American life? That Americans believe iodine starvation is an essential factor is shown by the wide prevalence of the custom of giving iodine tablets as a routine to growing children. . . . It must be remembered that few American children can enjoy the yearly visit to the sea, and the generous provision of salt-water fish, which provide iodine for the growing English child. It would seem that the intellectual stress which often appears to produce exophthalmic goiter in the clever and ambitious American college girl might usually be harmless in a body adequately stocked with iodine. It would be going too far to suggest that the restless activity which characterizes America indicates a national basal metabolism raised by iodine stortage. It is natural that a great nation in the first flush of its national virility should be restless and eager, and there is no need to find a pathological explanation of these phenomena.—Handley, W. S.: Impressions of Thyroid Surgery in America, *Lancet*, Dec. 18, 1926.

RELATION OF HYPERTENSIVE TOXEMIA OF PREGNANCY TO CHRONIC CARDIOVASCULAR DISEASE *

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When a pregnant woman exhibits one or more of the following symptoms, she is ordinarily said to have a toxemia: (1) pernicious vomiting, (2) jaundice, (3) hypertension, (4) albuminuria, (5) edema, (6) severe anemia, (7) convulsions, (8) visual disturbances. Cases showing these symptoms fall into certain groups, which can be roughly classified on clinical or pathologic grounds as follows: (1) pernicious vomiting; (2) acute yellow atrophy of the liver; (3) acute (eclamptic) toxemia; (4) subacute or hypertensive toxemia; (5) nephritic toxemia. These seem to fall into two classes, the first including pernicious vomiting and acute yellow atrophy—types of cases which are not considered in this report: the second, including the remaining three. This classification, while arbitrary and tentative, has proved useful in treatment and prognosis.

Among the acute toxemias are placed those in which, in most instances, there is a sudden and stormy onset, and a short course with convulsions—the true eclampsia. Under the caption "nephritic toxemia" are placed cases in which there appears to be an acute or chronic renal disease. As criteria of this we have used marked and persistent albuminuria or the retention of nonprotein or urea nitrogen in the blood.

This report deals with the fourth class—the subacute or hypertensive toxemia. As a determining and obligatory symptom, patients with this type of so-called toxemia have arterial hypertension, without convulsions and with little or no albuminuria. We have considered as hypertension readings above 140 mm. taken under the ordinary conditions of an antepartum clinic. The rise in blood pressure may be the sole symptom and it may be of gradual or rapid development, usually during the latter half of pregnancy. As the disorder progresses, certain symptoms which may be regarded as secondary are to be looked for. These are more likely to occur when the blood pressure has become quite high, and are albuminuria, headache, edema and visual disturbances with or without vascular retinitis. When the disturbance does not advance beyond the stage of hypertension and slight albuminuria, pregnancy usually goes on to the delivery of a normal fetus at term. With the appearance of the secondary symptoms, fetal death often occurs with the later delivery of a macerated fetus.

We have had no necropsies in cases of this description. We can, therefore, make no statement based on our own experience concerning the pathologic changes. There is usually a moderate increase in the uric acid of the blood and of the cholesterol and fibrinogen. Nonprotein nitrogen and urea nitrogen are at the usual concentration in the blood for late pregnancy. The blood chlorides are variable but usually normal.

It is interesting to consider the constitutional type of the individual presenting this disturbance. The majority of the patients are large of frame and muscle, broad, heavy; with thick skin, coarse hair, often of somewhat masculine distribution, and not infrequently with spaced central incisor teeth. Draper,[1] who at our suggestion studied the skeletal measurements of 117 of these women, found that they conformed to types of skeleton found in disturbance of function of the anterior lobe of the pituitary gland: in other words, of acromegaly.

This group, characterized chiefly by hypertension, is the most common type of toxemia of pregnancy, forming about 60 per cent of our cases. It has been arbitrarily separated and selected for medical study.

METHODS

The study has included a thorough history and physical examination in which especial attention is given to the cardiovascular and renal systems. Included is an ophthalmoscopic examination. In addition to the ordinary urinalysis and blood count, the laboratory has been called on for an examination of the blood for urea nitrogen or nonprotein nitrogen, uric acid, and not infrequently glucose, chlorides, creatinine, fibrinogen, cholesterol and calcium.

Following delivery or death of the fetus, the symptoms of the toxemia usually decrease promptly and tend to disappear during the patient's ordinary period of postpartum care in the hospital. The fact that patients who have suffered severe symptoms during their pregnancy leave the hospital in two or three weeks with normal blood pressure and urine free from albumin has led to the mistaken idea that the disturbance is at an end and that the patient could be discharged as cured and given no further medical care. The subsequent condition of this type of patient has received very little attention, and it has been assumed that the symptoms were limited to the period of pregnancy and were a by-product of that state.

In 1923, Bunzel [2] made follow-up observations on a series of patients who had suffered from late toxemias of pregnancy under observation at Sloane Hospital for Women. Harris [3] reported a series from the Johns Hopkins Hospital. Both these reports showed an unexpectedly high incidence of residual disease. Beginning in June, 1924, we continued the work in the Sloane Hospital, and established a special clinic for the continued medical care of patients who had undergone pregnancies with toxemia. Our aim was to make an intensive medical study of each patient and to follow her closely for as long a period as possible. It was hoped to observe the reaction of the woman's cardiovascular and renal systems to the other vicissitudes of her life besides pregnancy, and thus to arrive at a broader understanding of the conditions revealed by pregnancy. More than 250 patients have so far been followed in this clinic, at intervals of from six weeks to six years following delivery. Of these cases, 165 showed the simple hypertensive type of toxemia which is the subject of this paper. It may be emphasized that as all women who at any period of pregnancy showed a blood pressure of 140 or over are included in the study, a very large percentage of mildly disturbed cases are listed.

As the study advanced we were struck by the frequency of cardiovascular changes in these patients. As

* Read before the Association of American Physicians, Atlantic City, May 4, 1926.

From the Departments of Obstetrics and Medicine, Columbia University College of Physicians and Surgeons, and the Sloane Hospital for Women.

1. Draper, G.: Studies in Human Constitution, Physical Types in Relation to the Toxemias of Pregnancy, Am. J. M. Sc. **170**: 803-810 (Dec.) 1925.
2. Bunzel, E. E.: Statistical Review of Toxemias of Pregnancy, Am. J. Obst. & Gynec. **7**: 686-692 (June) 1924.
3. Harris, J. W.: After-Effects of Late Toxemias of Pregnancy, Bull. Johns Hopkins Hosp. **35**: 103-107 (April) 1924.

a gage of such changes, we adopted the following: 1. Hypertension—a blood pressure consistently or frequently above 140 mm. systolic or 100 mm. diastolic during the follow-up period. Readings in the follow-up clinic were taken with the mercury manometer with the patient lying down and after a sufficient period for relaxation. 2. Cardiac hypertrophy without endocarditis or thyroid disease. 3. Notable thickening of the brachial or radial arteries. 4. Vascular changes in the eyegrounds. Among the last named we count diminution or marked variation in caliber of the retinal arteries with or without increased light reflex; displacement or constriction of the veins at the points of crossing of the arteries and, when present with the foregoing, patches or points of white and hemorrhages. No study of the capillaries has been made in this series of cases. The average age of these patients was 29.

RESULTS

The results are shown in the accompanying tables.

In table 1 is given the incidence of cardiac hypertrophy, thickening of the brachial and radial arteries, and changes in the retinal vessels as observed in this group of patients during their toxic pregnancy. Table 2 shows like incidence for the same group of cases in the nonpregnant stage; that is, as they were observed in the follow-up clinic. Table 3 summarizes the data of table 2, showing the incidence of any of these three types of cardiovascular change found in the follow-up clinic. Cases are placed in subgroups according to their maximum blood pressure readings ante partum.

By way of control, a series of cases without hypertension or albuminuria during pregnancy was taken at random from the antepartum and postpartum clinics and similarly examined with reference to their cardiovascular status. The results are given in table 4.

TABLE 1.—*Cardiovascular Status in Follow-Up*

Blood Pressure Antepartum	Heart			Large Arteries			Retinal Arteries			Hypertension		
			Patients with Hypertrophy			Patients with Thickening			Patients with Changes			Patients with Hypertension
Readings	Number of Patients Observed	Number of Patients Observed	Number	Per Cent	Number of Patients Observed	Number	Per Cent	Number of Patients Observed	Number	Per Cent	Number of Patients Observed	Number	Per Cent
140-149	42	39	16	41	34	12	35	30	17	57	41	9	22
150-159	46	43	12	28	34	5	15	34	17	50	46	8	17
160-169	30	27	12	44	22	6	27	20	12	60	28	12	43
170-179	18	16	3	19	14	9	64	10	6	60	18	11	61
180-189	14	12	6	50	11	6	54	12	9	75	14	9	64
190-199	4	3	2	67	3	1	33	3	2	67	4	2	50
200+	11	9	6	67	7	4	57	10	10	100	10	9	90
Totals	165	149	57	32	125	43	34	119	73	61	161	60	37

TABLE 2.—*Cardiovascular Status in Pregnancy*

Blood Pressure	Heart			Large Arteries			Retinal Arteries		
		Patients with Hypertrophy			Patients with Thickening			Patients with Changes	
Readings	Number Patients Observed	Number Patients Observed	Number	Per Cent	Number Patients Observed	Number	Per Cent	Number Patients Observed	Number	Per Cent
140-149	42	42	5	12	24	6	25	16	10	62
150-159	46	45	5	11	27	2	7	15	4	27
160-169	30	27	7	26	15	3	20	13	7	54
170-179	18	17	4	23	13	4	33	11	4	36
180-189	14	13	5	38	9	5	55	7	5	71
190-199	4	4	1	25	..	..	..	3	2	67
200+	11	11	9	82	7	4	57	7	5	71
Totals	165	159	36	23	95	24	25	72	37	50

The criterion of cardiac hypertrophy was taken as a distance of four or more inches between the point of maximal impulse and the median line. As will be seen by a comparison of tables 1 and 2, this degree of displacement of the apex of the heart is of little significance ante partum. In the follow-up observations, however, the incidence of this degree of displacement

TABLE 3.—*Summary: Any Type of Cardiovascular Change in Follow-Up*

Blood Pressure Antepartum Readings	Changes		
	Number of Patients Observed	Patients with Changes	
		Number	Per Cent
140-149	42	30	71
150-159	46	27	60
160-169	30	24	80
170-179	18	15	83
180-189	14	12	86
190-199	4	3	75
200+	11	11	100
Totals	165	122	74

TABLE 4.—*Normal Controls (Patients Showing No Toxic Symptoms in Pregnancy)*

	Per Cent Showing Cardiovascular Changes	
	Antepartum (39 Cases)	Postpartum (50 Cases)
Displacement of heart apex	23	4
Thickening of brachial or radial arteries	18	16
Vascular retinal changes	21	10
Any type of cardiovascular change	..	28
Month of pregnancy	7 to 10	
Average age	26	

is seen to be very much greater in the patients who had had toxic pregnancies than in the normal controls. It will be seen that patients showing the higher blood pressure readings during pregnancy give a higher incidence of other cardiovascular changes both in pregnancy and in the follow-up. All patients with a blood pressure of 200 or over during their toxemia showed cardiovascular changes in the follow-up period; 90 per cent had well established hypertension, 100 per cent exhibited vascular retinal changes, 67 per cent cardiac hypertrophy, 57 per cent thickening of the radial and brachial arteries. It is of interest to note the high incidence of cardiovascular changes (71 per cent) in the group of cases with pressures only slightly above the normal.

Sixty-three of these patients who have recently gone through pregnancies with this type of toxemia have been observed in this hospital in one or more preceding or subsequent pregnancies. The number of pregnancies has varied from two to six per patient; the period of years over which their records extend varies from two to twenty-three. Thirty-three of the women have been observed during pregnancies more than five years, and fourteen of them more than ten years. It has therefore been possible to estimate whether a woman who has once suffered from the type of toxemia considered is liable to develop it in subsequent pregnancies.

Eleven of the sixty-three cases showed hypertension only in the last of a series of pregnancies, and it is therefore still a question how they will react in the future. Fifty-two of the women, however, were observed in pregnancies subsequent to the one in which they first developed toxemia, and of these, fifty, or 96 per cent, had a recurrence of some grade of hypertension. In twenty-one of these cases there was a tendency for the disease to become more severe; in sixteen, the blood pressure reached about the same figures; while in

only six was the blood pressure progressively lower in the later pregnancies. Of forty-four of the sixty-three patients observed in the follow-up clinic when not pregnant, twenty-seven, or 61 per cent, had blood pressure above 140. Of the fifty patients who had hypertension in two or more pregnancies, twenty-seven were seen in follow-up, and of these, twenty-one, or 78 per cent, had a blood pressure above 140. These data indicate that a woman who has once exhibited hypertension in pregnancy is liable in subsequent pregnancies to show a similar or more advanced disturbance, and that as pregnancies are repeated she tends to maintain a hypertension in the nonpregnant state as well.

Of the total 230 pregnancies carried five or more months by this group of women, thirty-four, or 1.5 per cent, ended as stillbirths. One woman had eight and another five stillbirths; if we except these, and five others presumably referable to syphilis, we have sixteen, or 0.7 per cent, for the remaining women. This incidence of stillbirths is, of course, much lower than that for our series in which evidences of renal disturbance were present.

The demonstration that 74 per cent of examples of the subacute type of the toxemia of pregnancy show subsequent cardiovascular changes is important for both internal medicine and obstetrics. At once the problem arises: Is the pregnancy abnormal or is the woman fundamentally abnormal; that is, has she a latent cardiovascular disease which pregnancy has brought to light? Excepting these cases observed throughout several pregnancies, we have no data of the prepregnancy state of these patients. In favor of an underlying cardiovascular disorder is the recurrence of toxic symptoms during repeated pregnancies, often extending in our records over a period of years. Also many of these cases when first observed in the early stages of their toxic state show organic cardiovascular changes obviously of long standing.

We therefore incline to the view that the subacute, hypertensive toxemia of pregnancy is the response of the woman with latent or declared cardiovascular disease to the strain of pregnancy. In other words the woman has a substandard cardiovascular mechanism which is thrown out of functional equilibrium by the stress of reproduction. Many of these cases appear to be examples of essential hypertension which, under the efficiency test of pregnancy, react much as they do eventually to the wear and tear of life.

Search for a single cause of the toxemias of pregnancy has thus far been without success. A promising line of inquiry would seem to be the medical study of the individual not only during pregnancy but also before and after pregnancy. By such study it may be possible to find out what kind of physique reacts in this way to the stress of pregnancy.

Without committing ourselves to any explanation of the matter, we would call the attention of obstetrician and internist to the frequency of cardiovascular disease in those afflicted with the common subacute type of the toxemia of pregnancy. We would urge that women who have exhibited this disturbance once during pregnancy, even if they do not show persistent circulatory changes, be regarded as examples of potential cardiovascular disease and the necessary measures taken to postpone its development. In the larger group with obvious cardiovascular disease, an unfavorable reaction to pregnancy with the appearance of a so-called toxemia is to be expected. Women with cardiovascular disturbances—particularly hypertension and well marked changes in the retinal or larger peripheral arteries—need special care during pregnancy. In this responsibility, both obstetrician and internist should share. Attempts at frequent childbearing should be discouraged, since they are liable to accelerate the progress of the fundamental malady in the mother. In suitable cases, sterilization is a legitimate procedure.

CONCLUSIONS

1. Study of 165 cases of the subacute or hypertensive type of the toxemia of pregnancy both during pregnancy and in a follow-up clinic has brought to light a striking relationship between this type of toxic disturbance and chronic cardiovascular disease.

2. In 165 cases thus observed, 122, or 74 per cent, exhibited cardiac hypertrophy, sclerosis of the brachial or radial arteries, vascular retinal changes, or persistent hypertension after a period of from six months to six years post partum. Of these, 37 per cent showed persistent hypertension.

3. Of fifty-two cases observed in one or more pregnancies subsequent to the one first attended by this type of toxemia, fifty showed hypertension in the subsequent pregnancy. In twenty-one, the blood pressure in the subsequent pregnancy showed higher figures; in sixteen, the level reached was about the same; while in only six did the pressure tend to decrease with succeeding pregnancies.

4. Patients manifesting this type of disturbance should be observed over a series of years for evidence of cardiovascular disease. Patients with cardiovascular disease should be safeguarded by a special medical care during pregnancy and should be discouraged from often repeated attempts at childbearing.

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THE TREATMENT OF ACUTE GONORRHEA WITH ANTISEPTICS IN GELATIN *

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Acute gonorrhea is a generalized inflammation of the mucous membrane of the anterior urethra resulting from the presence of gonococci and the toxic products. The degree of the extension to the posterior urethra or deep into the submucous tissues of the anterior urethra varies directly with the successful control during the early stages of the infection. Various percentages of the extension into the posterior urethra are given by different authors, but it is stated in many textbooks on gonorrhea that as high as 75 per cent become posterior. It is doubtful whether such a high proportion become posterior in the present experience of urologists, but in our observations previous to the use of the present method, it seemed highly frequent.

It is generally realized that the organotropic index of a drug must be considered as well as the gonococcidal index in determining the fitness of the drug for local treatment. We decided to try other than aqueous solutions of the antiseptic, with the idea that less injury might be done to the tissues, and if the antiseptic power of the mixture was not lowered to any great extent it

* From the John McCormick Institute for Infectious Diseases.

then would be nearer the ideal combination. Neutral acriflavine was used in gelatin with good results. No doubt many other drugs would make a satisfactory combination with the gelatin. Neutral acriflavine is known to be gonococcidal in high dilution and better than the average penetrability, but in water or physiologic sodium chloride solution it is frequently irritating unless used in dilutions greater than 1:2,000, and some advise that it should not be used stronger than 1:4,000. It does not seem to produce any subjective or objective symptoms of irritation in dilutions as low as 1:400 of gelatin water containing from 10 to 15 per cent of gelatin. The drug is first added to distilled water for the desired strength and then heated to about 60 C.; then the gelatin leaves are placed into the mixture and stirred until dissolved.

Gelatin alone does not inhibit the growth of the gonococcus on artificial mediums, but the neutral acriflavine in 10 per cent gelatin kills the gonococcus in dilution of 1:4,000. The gonococcidal tests were made by using various dilutions of acriflavine in 10 per cent gelatin and incubating the suspension of a twenty-four hour growth of gonococcus for fifteen minutes at 37 C. Transplants of the mixture to ascites phosphate agar plates were made. It may be, too, that the gelatin neutralizes to some extent the gonotoxin in the urethra. The gonotoxin content of the self-digested pus extract during the acute stage is high.

A filtrate of gonococcus culture in broth, when injected into the normal urethra, is followed in a few hours by subjective symptoms of itching and burning, slight purulent discharge and profuse shreds in the urine for twenty-four hours. There is a gradual clearing of the urine and it becomes normal in three or four days. When the same filtrate is combined with 10 per cent gelatin before injection, it produces only very slight subjective or objective symptoms of irritation.

There is probably some hydroscopic action by the gelatin, since it tends to take up moisture when not saturated, as it is a protective colloid.

The results seem to indicate that there are fewer follicular infections than with aqueous solutions. The thick sticky solution remains in the urethra for a longer period after treatment than aqueous solutions. Finally, it is an emulsoid colloid or protector, and has all the added advantages peculiar to colloids in treatment of infections of the mucous membrane.

The gelatin acriflavine mixture solidifies at room temperature, so it was necessary to use 8 ounce wide vacuum jars which kept the gelatin in a semifluid state for from ten to twelve hours. This is practicable for office use since it is necessary only to heat the mixture each morning and place it in the vacuum jars. The urethral injections were given daily and retained for eight minutes. The patient supplemented the treatment at home by the injection of a mild silver preparation, but the rapid control of the discharge and the relief of the symptoms of irritation frequently after the first or second injection would seem to leave no doubt of the direct effect of acriflavine in gelatin. Strong silver protein was used in 1 per cent solution, with 2 per cent gelatin as the second step in office treatment, and served as an intermediate test between the acriflavine and the final or silver provocative tests.

It is possible to use the gelatin mixture for other than office treatments when small quantities of gelatin are used, such as 1 per cent, as it does not coagulate at the lower temperature and may be combined with neutral acriflavine in higher dilution of this drug, or with strong silver protein and many other antiseptics. It is being used in this way at the present time in some cases.

The patients included in this report were particularly favorable for observation, since they were all private patients and under much better control than the average clinic patient.

Complete early clearness of the urine of many of the treated patients, often without any marked intermediary stage of shreds and flocculi, would seem to indicate that there is less desquamation than when aqueous solutions are used.

One of the most striking results noted was the low percentage of cases complicated by posterior infection. There were only eighteen, or 16.5 per cent, posterior infections out of the 109 selected for the foregoing method of treatment. The cases selected were, as nearly as could be determined, recent infections and not acute exacerbations of chronic infections. Only a few patients had a discharge of longer than four days on the initial examination. There was a larger proportion of posterior complications among those who had a discharge for several days before treatment than with a discharge of short duration. The average duration of the discharge before treatment in the cases in which ultimately there were complications was 5.4 days, while the average duration of those which remained uncomplicated was 2.5 days. The average time until cure of the uncomplicated cases was 3.2 weeks, and the average time of cure of the patients with posterior complication was 8.4 weeks.

This method of treatment has been in use for approximately two years, and many patients included in this report have been kept under observation for longer than six months for appearance of relapses or late sequelae, such as stricture. There has been in a large proportion of such cases almost immediate stoppage of the discharge and the acute inflammation and pain in the urethra. The records of each of us have been kept separately and the data summarized independently before the combined statistics were made. The separate results were almost identical. The method has had some failures, but there has been increased efficacy with the gelatin. Other gels or gelatins combined with other drugs may prove superior, but observations seem convincing that such bases are better than aqueous solutions.

SUMMARY

The use of neutral acriflavine in gelatin has given results distinctly superior to any previous routine of treatment. There is a lower percentage of complications and in the uncomplicated cases there is a marked reduction in the period of time until cure is effected. There is in addition a notable decrease in the sequelae, which is apparently due to less involvement of the urethral glands and fewer localized areas of ulceration or infiltration, and this would seem to indicate that there may be less late or subsequent gonorrheal pathologic changes with this method of treatment.

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Definition and Scope of Health Education.—In the program of the public schools, health education is the process of developing ideals, habits and knowledge conducive to the maintenance or improvement of such physical, mental, emotional and social well being as results in a normal, happy and useful life.—Report, Joint Health Committee, Health Education, p. 16.

A CASE OF MATERNAL TETANY RELIEVED BY PARATHYROID EXTRACT-COLLIP

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One of the oldest known forms of tetany is that associated with pregnancy. As early as 1830, Steinham described the condition, and Darce, in 1831, published his observations. Trousseau, in 1854, proposed the name "rheumatic contracture of nursing women." However, judging from the literature that has since accumulated, this form of tetany is relatively rare. Niderehe [1] states that even in Vienna, an endemic tetany locality, the incidence of maternal tetany to total births is about 3 to 10,000. Adler and Thaler,[2] in Schauta's clinic, observed only nine cases in 30,000 births over a period of ten years. Von Jaschke [3] also states that outspoken tetany in pregnant women is very rare, although he qualifies this by adding that mild manifestations of nervous hyperexcitability are quite frequent. On the other hand, Kehrer [4] suggests that the relative frequency of tetany to total births may vary for, like the epidemic type, he noticed that the ratio increased during certain years and that in these years it usually occurred during the so-called tetany months of the late winter and the early spring.

Obviously, with such a low incidence, it is rather difficult to determine the mortality with any degree of accuracy. Seitz [5] estimated it at about 7 per cent, and Niderehe likewise found that of about ninety cases reported in the literature, there was a mortality of about 7 per cent.

In spite of the rarity of the condition, Frankl-Hochwart, Kehrer and others have shown that the incidence is, to some extent at least, influenced by certain extraneous factors. These writers have shown not only that chronic tetany is apt to become acute during pregnancy, but that anemic, weak individuals are distinctly more susceptible. Hoffman and others have noted that severe blood loss at birth has a decided influence on the development of tetany. The condition is much more frequent during the last three months of pregnancy and is especially apt to recur during subsequent pregnancies. It is relatively rare in primiparas.

The influence of gestation on the pathogenesis of tetany was originally shown by the experiments of Erdheim [6] on a rat from which he extirpated the parathyroid glands. An accessory parathyroid prevented the immediate development of tetany, but toward the end of each of two successive pregnancies definite tetany developed, and in both instances parturition resulted in complete relief. Kocher noticed that in those cases in which he had performed a partial thyroidectomy in the early months of pregnancy, mild tetany was much more apt to develop.

Considerable experimental work has been done to determine the pathogenic relation of pregnancy to tetany. As early as 1898, Vassale and Generali [7] reported tetany during the first days of lactation in a dog eighteen months after extirpation of three parathyroids. Thaler and Adler succeeded in producing tetany in rats during pregnancy by partial parathyroidectomy, and similar observations were made by Fromme. Halsted, Massaglia, Zanfrognini and others also observed that pregnancy might induce severe tetany in dogs that had survived a partial parathyroidectomy for long periods of time without manifestation of tetanic symptoms. Kehrer, in a series of experiments, found that removal of three of the four parathyroid glands in pregnant cats and dogs almost invariably led to severe and often fatal tetany, although a similar operation on nonpregnant animals did not, in the majority of cases, produce tetany. He feels that one "cannot longer doubt that not only pregnancy tetany but also lactation tetany, like the tetany following goiter extirpation, is referable to lack of function of the parathyroid glands. The only thing lacking is the actual anatomic-histologic evidence of parathyroid disturbance."

That pregnancy is a condition which puts an extra strain on the physiologic processes of the body is obvious.[8] It follows, then, that the utilization of calcium by the fetus may cause an impoverishment in the mother. Since the parathyroid secretion, as stated by MacCallum,[9] controls in some way the calcium exchange in the body, this calcium poverty in the maternal organism would obviously result in an additional strain being placed on the parathyroid glands. If this strain is sufficiently great, either as a result of great deprivation of calcium because of the requirements of the fetus or by excessive blood loss, or because the patient already suffered a slight parathyroid insufficiency, proper calcium metabolism would not be possible. Numerous researches have shown the important relation of calcium salts to the excitability of the central nervous system. Their withdrawal leaves the nerve cells in a state of hyperexcitability which can be made to disappear by supplying them with a solution of calcium salts. Barker [10] feels that the unitary conception of the pathogenesis of tetany may lie in metabolic conditions (some of them parathyrogenous, some of them nonparathyrogenous), which produce a reduction of calcium ions from the neurons, no matter by what means. This, in a broad sense, obviously follows from the effects produced on the nerve cells by the withdrawal of calcium, and experimentally a calcium paucity may be produced in a number of ways, the end-results being identical with those manifested by a parathyroid insufficiency. However, in maternal tetany there are apparently only two conditions that may obtain; either there is an insufficient supply of calcium in the maternal body to permit the maintaining of a proper concentration of calcium ions, or the previously impaired parathyroid glands of the mother are unable to cope with the additional strain placed on them. It seems reasonable to assume that the first of these conditions does not, in the majority of cases, exist, so that one is forced to the opinion that the available calcium is not properly utilized. To be sure, extreme blood loss can conceivably result in a sudden and considerable diminution of the available calcium of the body. However, profound

1. Niderehe, W.: Arch. f. Gynäk. **116**: 360-382 (Nov.) 1922.
2. Adler, L., and Thaler, H.: Wien. klin. Wchnschr. **19**: 779-780, 1906; Ztschr. f. Geburtsh. u. Gynäk. **62**: 194-223, 1908.
3. Jaschke, von R. T., and Paukow, O.: Lehrbuch der Geburtshilfe, eds. 10 and 11, Berlin, Julius Springer, 1923, p. 375.
4. Kehrer: Arch. f. Gynäk. **99**: 373-447, 1913.
5. Seitz: Innere Sekretion und Schwangerschaft, Leipzig, Barth, 1913, p. 143.
6. Erdheim: Tetania parathyreopriva, Mitt. a. d. Grenzgeb. d. Med. u. Chir. **16**: 632-744, 1906.
7. Vassale and Generali: Arch. ital. de biol. **26, 33,** 1898; quoted by Voegtlin (footnote 8).
8. Voegtlin, C.: Surg. Gynec. Obst. **25**: 244-250 (Sept.) 1917.
9. MacCallum and Voegtlin: Relation of Tetany to Parathyroid Glands, J. Exper. Med. **11**: 118-151, 1909.
10. Barker, L. F.: Endocrinology and Metabolism, New York, D. Appleton & Co. **1**: 586, 1922.

hemorrhages not associated with pregnancy do not as a rule result in tetany. Apparently, then, while the excessive blood loss (as well as other conditions, such as chronic anemia) may be a contributing factor, the fundamental cause seems to lie in an improper calcium metabolism, which in turn results from a deficiency in parathyroid activity.

The isolation by Collip,[11] early in 1925, of a parathyroid hormone which definitely influences the calcium metabolism, as evidenced by its effect on the blood serum calcium content, permits a therapeutic determination of the pathogenesis of the various types of tetany, which had heretofore been impossible because of the lack of a potent parathyroid extract. The case here reported seems to be the first one of maternal tetany to be treated with this new extract. The observations and the results obtained justify the assumption that at least certain of the cases of maternal tetany result from an impaired parathyroid activity rather than from an actual paucity of calcium within the maternal organism.

REPORT OF CASE

A white American woman, aged 32, came under the observation of one of us (R. K. S.) in August, 1925, at which time she was about three months pregnant. She was a primipara and had been rather an exceptionally healthy woman, influenza and pneumonia being the only severe infections she had experienced. She had had a "nervous breakdown" several years previous to coming under our observation, but at this date it is impossible to state whether or not this can be considered a manifestation of a parathyroid insufficiency. In any event, the influenza and pneumonia apparently did not cause sufficient strain on the parathyroid apparatus to produce tetanic symptoms.

The catamenial history was entirely normal. The menarche occurred at the age of 14, and the periods had been regular, of five days' duration, with a normal flow. Her last period was May 30, 1925.

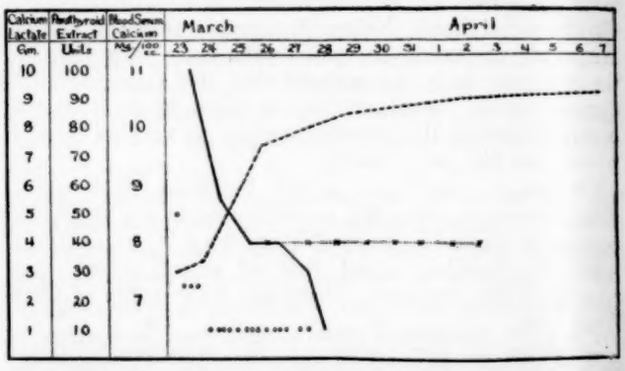
The pregnancy was quite normal and, save for a mild bladder infection during June, 1925, she was quite free from discomfort. Labor began about 1 a. m., March 21, 1926. The membranes ruptured spontaneously at 7 p. m., March 21, and contractions began at about 10 p. m. At this time the patient was bleeding freely. By midnight of March 21 she was bleeding profusely, but pain was not experienced. Vaginal examination at this time revealed the placenta on the posterior wall of the lower uterine segment. A diagnosis was made of placenta praevia marginalis. Because of this, together with the fact that the uterine os was rigid and the child large, the patient was immediately removed to the operating room and a low type cesarean section was performed (by R. K. S.). About 1,000 cc. of blood was lost during this operation, and some 500 cc. had been lost prior to operation. She was returned to her room in very good condition.

During the succeeding early morning hours of March 22, the patient was fairly comfortable and, except for a tachycardia of about 140, was symptomless. The tachycardia is an interesting feature in that prior to the cesarean section the pulse rate was about 120, much faster than the loss of some 500 cc. of blood warranted. This was originally considered to be due to anxiety. However, after the operation the tachycardia persisted, although there was no evidence of shock. In view of the subsequent events, this apprehension and consequent increased pulse rate probably was the first manifestation of tetany.

On the morning of March 23, the patient awakened, after a good night's sleep, with definite evidence of tetany. She was extremely apprehensive, her legs felt numb, and she was afraid to move them for fear of cramping. She stated that her body spasmodically would feel "as if it were pinned to the bed." She looked very pale (the hemoglobin a few hours later was found to be 60 per cent by the Sahli method, with 3,750,000 erythrocytes per cubic millimeter); there was a permanent carpopedal spasm (Trousseau's phenomenon); Chvostek's sign was markedly positive; in fact, tapping over the facial nerve caused the eyelids to close and remain closed in spasm for several seconds; the "carp-mouth" of Uffenheimer was very obvious. Her temperature was 102 F. (38.8 C.) and the pulse was 160.

The patient was at once given 30 grains (2 Gm.) of bromides and 15 grains (1 Gm.) of chloral by rectum without any effect whatever on either the subjective or the objective evidences of tetany.

At 8:30 a. m., blood was withdrawn for calcium determination, but before the result was known, because of the severe degree of tetany, she was immediately given 50 units of parathyroid extract-Collip intravenously. The result subjectively was spectacular. Within five minutes the apprehension had decreased very markedly and, while the carpopedal spasm persisted, it apparently caused her no discomfort. Within ten minutes after the intravenous medication, her pulse had dropped to 140. By 1 p. m. her hands were completely relaxed, the spasm of the facial muscles (carp-mouth) had entirely disappeared, and her apprehensive attitude was almost absent. Chvostek's sign remained markedly positive. The blood serum calcium prior to administration of the hormone was found to be 7.5 mg. per hundred cubic centimeters.



Response of the blood serum calcium curve to injections of parathyroid extract: solid line, parathyroid extract, the dosage of which is indicated by circles; broken line, blood serum calcium; dotted line with crosses, calcium lactate.

Twenty-five units of parathyroid extract was given intramuscularly at 1 p. m. This dosage was repeated at 7 p. m. and again at 1:30 a. m., March 24. The fasting blood serum calcium taken at 8 a. m., March 24, was 7.7 mg. per hundred cubic centimeters. Beginning at 12 noon, March 24, the patient received 10 units of parathyroid extract subcutaneously every six hours day and night until noon, March 26. The fasting blood serum calcium on this date had reached the normal level of 9.7 mg. per hundred cubic centimeters.

At this time, administration of calcium salts, which heretofore had been completely withheld in an effort to determine the merits of the parathyroid extract alone, was started in the form of calcium lactate, 1 Gm. four times daily. With the administration of the calcium salt, the parathyroid dosage was reduced to 10 units every eight hours. This regimen was continued until noon, March 28, when the parathyroid extract was entirely discontinued. March 29, the fasting blood serum calcium was 10.2 mg. per hundred cubic centimeters. Calcium lactate was discontinued, April 1, at 6 p. m.; April 2, the fasting blood serum calcium was 10.5 mg. per hundred cubic centimeters. No further medication seemed necessary, and April 7, the calcium content of the fasting serum was found to have maintained a normal level (10.6 mg. per hundred cubic centimeters).

The patient was absolutely symptomless subsequent to the evening of March 23, although objective evidences of tetany, as manifested by Chvostek's and Trousseau's phenomena, did not disappear until March 25. On the evening of March 23, she developed a postpartum psychosis, which at first was

11. Collip, J. B.: J. Biol. Chem. **63**: 395-438 (March) 1925. Collip, J. B.; Clark, E. P., and Scott, J. W.: Ibid. **63**: 439-460 (March) 1925. Collip, J. B., and Clark, E. P.: Ibid. **64**: 485-507 (June) 1925. Collip, J. B., and Leitch, D. B.: Canad. M. A. J. **15**: 59-60 (Jan.) 1925. Collip, J. B.: Harvey Lecture, Medicine **5**: 1-57 (Feb.) 1926.

quite severe. This gradually cleared up, so that by March 26 she was perfectly rational.

She was discharged about the middle of April and has remained entirely free from symptoms of tetany. A blood serum calcium determination made in September, 1926, was 11.7 mg. per hundred cubic centimeters. Incidentally, the anemia cleared up rather rapidly during convalescence.

The foregoing data are summarized on the accompanying chart, which shows the dosage of parathyroid extract as well as that of calcium lactate, together with the response of the blood serum calcium.

COMMENT

This case is reported not only because it apparently is the first case of maternal tetany to be treated by parathyroid extract-Collip, but also and for the more important reason that it seems to offer tangible and definite evidence, at least in this instance and therefore by analogy in other cases of maternal tetany, that a parathyroid insufficiency per se is the fundamental pathogenic cause of this type of tetany.

In this instance the pregnancy progressed normally until just before term, when a small amount (500 cc.) of blood was lost. At this time the patient became apprehensive and a tachycardia, out of proportion to the hemorrhage, resulted. She was then operated on, and an additional blood loss of about 1,000 cc. produced very marked evidence of tetany with a blood serum calcium of 7.5 mg. per hundred cubic centimeter. She had received a normal diet up to the time of her operation, so that there is not any reason to suppose the supply of available calcium was anything but normal. This is further substantiated by the fact, and a very important one, that subsequent to her operation the patient did not receive further supply of calcium either as a therapeutic agent or in her diet, for in the first few days after operation she ate practically nothing. Yet, on the administration of parathyroid extract alone, the symptoms of tetany disappeared completely and the blood serum calcium returned to normal. After, and only after, the latter had reached a normal level was calcium administered.

Apparently, then, the patient's parathyroid apparatus was impaired to such an extent that it was unable to cope with the strain of pregnancy together with a slight diminution of available calcium, which obviously resulted from the loss of 1,500 cc. of blood. However, the latter was probably only an aggravating cause, since an increased supply of the parathyroid hormone, without the further addition of calcium, succeeded in completely eliminating the tetany and causing a return of the calcium content of the serum to normal. We therefore feel that therapeutic substantiation has been given by this case to Pinele's argument that the identity of the clinical phenomena of the several forms of tetany could not be accounted for otherwise than by the assumption of a common pathologic-physiologic basis of hypoparathyroidism.

It is interesting to note in this case, as in the various other types of tetany studied by two of us,[12] that the subjective symptoms are the first affected by the administration of parathyroid hormone-Collip in adequate dosage; only later does the objective evidence disappear; and last of all, only after a lapse of from forty-eight to seventy-two hours, does the calcium content of the blood serum approach the normal.

SUMMARY

1. In a case of tetany occurring immediately post partum it is shown that, while the supply of available calcium was in all probability normal, the loss of some 1,500 cc. of blood induced marked symptoms of hypocalcemia (cesarean section had been performed because of placenta praevia marginalis).

2. The prompt administration of active parathyroid hormone-Collip in adequate dosage, without the aid of any other therapeutic agent, even calcium, relieved the hyperexcitability of the nervous system and caused the calcium content of the blood serum to return to normal (from 7.5 to 9.7 mg. per hundred cubic centimeters).

3. This case offers therapeutic substantiation of the parathyrogenous origin of maternal tetany.

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12. Lisser, Hans; and Shepardson, H. C.: Endocrinology **9**: 383-396 (Sept.-Oct.) 1925.

UNDULANT FEVER AS A PUBLIC HEALTH PROBLEM *

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Malta fever in man was first described in the United States by Craig,[1] in 1903. In Europe, the relation of the disease in man and in goats had been recognized for a long time, with *Brucella melitensis* as the infecting organism. Craig says: "There are no pathognomonic symptoms of Malta fever. The symptoms observed are so inconstant and confusing that no one of them can be said to be typical of the disease. A differential diagnosis is almost impossible in the majority of cases without the aid of the microscope and the serum test." A multitude of names have hence been used to describe the disease; according to Keefer,[2] "undulant fever or febris undulans (from the wavelike accessions of fever); Malta, Maltese, Mediterranean, Gibraltar or "rock," Neopolitan and Cyprus fever (from the geographic distribution); slow, mountain continued, goat fever (in Texas and New Mexico); Mediterranean phthisis (from the bronchitis, anemia and night sweats suggestive of phthisis); Bruce's septicemia, melitensis septicemia, febris melitensis, mittelmeerfieber, etc."

In 1918, Evans[3] established the relationship of *Brucella melitensis* causing Malta fever in goats, and *Brucella abortus* causing contagious abortion in cattle. For some time the infectiousness of *Brucella abortus* for man had been suspected, but absolute evidence was not obtainable till 1924, when Keefer[2] described such a case. Following are the cases of undulant fever reported in the scientific literature probably traceable to cattle: one case described by Keefer,[2] one by Evans[4] and one by Duncan[5] in 1924; three cases described by Huddleson[6] in 1924, five by Carpenter[7] in 1926, and two by Carpenter[8] later in 1926.

* From the Division of Laboratories, Illinois State Department of Public Health.

1. Craig, C. F.: Malta Fever: Its Occurrence in the United States Army, with Review of the Literature, Am. J. M. Sc. **125**: 105, 1903.
2. Keefer, C. S.: Report of a Case of Malta Fever, Originating in Baltimore, Bull. Johns Hopkins Hosp. **35**: 6 (Jan.) 1924.
3. Evans, Alice C.: Further Studies on Bacterium Abortus and Related Bacteria, J. Infect. Dis. **22**: 580 (June) 1918.
4. Evans, Alice C.: Cattle Suggested as a Possible Source of Infection, Following a Serological Study of Human Serums, Pub. Health Rep. **39**: 501 (March 14) 1924.
5. Duncan, J. C.: The Rôle of the Domestic Cow in the Epidemiology of Undulant Fever, Tr. Roy. Soc. Trop. Med. & Hyg. **18**: 318 (Nov.-Dec.) 1924.
6. Huddleson, I. F.: Is Bacterium Abortus Pathogenic for Human Beings? J. A. M. A. **86**: 943 (March 27) 1926.
7. Carpenter, C. M.: Agglutinins for Brucella Abortus in the Blood of Man, J. Infect. Dis. **39**: 220 (Sept.) 1926.
8. Carpenter, C. M.: Undulant Fever from Brucella Abortus, J. A. M. A. **87**: 1269 (Oct. 16) 1926.

REPORTS OF EXPERIMENTS

For some months in these laboratories, agglutination tests with *Brucella abortus* antigen have been made on blood serums sent in for Widal tests. For this work only those specimens were selected in which sufficient material was submitted to obtain clear serum. The macroscopic test was used with dilutions ranging from 1:25 to 1:500. A killed suspension of *Brucella abortus* was kindly furnished us by Huddleson. Out of sixty-nine specimens so tested, five gave reactions in dilutions of 1:200 or greater; five others agglutinated in 1:25 only, and were neglected from the study; one other agglutinated in 1:50.

Following are histories of the cases as far as they could be obtained from the attending physicians.

CASE 1.—G. B., a woman, aged 28, married five years, had two children living and well, aged 3 years and 18 months, respectively. The last baby was still nursing. Retroversion and leukorrhea occurred after the birth of the first child, and continued to the time of examination, although it was very slight after the birth of the second child. The patient had influenza in 1918, the only illness since childhood. The present complaint began, July 1, 1925, with nausea and diarrhea, followed in a few days by constipation, weakness and dizziness. There was a temperature of 99 which has gradually increased to 103, with a pulse rate of 100, irregular at times. Pain was not complained of at any time. The temperature was normal in the morning, but it rose in the afternoon. There was perspiration at night, usually followed by a chill. The urine was acid, with a specific gravity of 1.024. Renal epithelium, epithelial and granular casts and a trace of albumin were present. The blood count was: leukocytes, 4,600; erythrocytes, 3,400,000, hemoglobin, 70. Roentgen-ray examinations indicated probable tuberculosis at the base of the lungs. Pulmonary tuberculosis had been suggested by other physicians before the roentgen-ray report was made. A Widal test was negative. Agglutination with *Brucella abortus* was positive in 1:500 dilution.

CASE 2.—J. R., a man, aged 28, born in Wisconsin, was in a managerial position for a tractor company, and had spent a good many days on farms demonstrating machinery. The milk he used was raw, and according to his statement, he drank lots of it. The past history was negative except for a rectal abscess which has given him trouble. He had malaria in 1921 in Mississippi, and the rectal abscess developed after the attack of malaria. He had spent several months in Central America. The first symptoms in the present illness were fever and weakness for about ten days prior to the patient's entrance into the hospital (about July 10), a gradual rise in temperature to 103 daily, maintained until August 18, when temperature had returned to normal by lysis. The pulse rate was never above 90. The respiration was 20, and he was drowsy and apathetic. There were not any abnormal conditions except an enlarged liver, a clogged bowel and a palpable spleen. The leukocyte count was 15,000. The Wassermann reaction was negative and the Widal reaction for typhoid and paratyphoid A and B was negative on three occasions. The stool and blood cultures were negative. Agglutination reaction with *Brucella abortus* was positive in 1:200 dilution. During a relapse from August 30 to September 7, the symptoms were the same as before.

CASE 3.—A. C., a boy, aged 16, had chills and continuous fever of from 102 to 103 for ten days; the temperature dropped on the eleventh day to 100 and was normal on the twelfth day. There was irritation of the throat and bronchitis the first three or four days, with slight nosebleed. A little tenderness was present over the liver and gallbladder, which was slightly palpable. The patient worked on a golf course around a lake at the country club. He had been drinking water from the lake. A few cattle were in a pasture adjoining the lake, and the patient drank raw milk. The Widal test was negative, and the abortus agglutination was positive in 1:500 dilution.

CASE 4.—W. D., a man, aged 33, was admitted to the hospital, Dec. 7, 1925, with a history of general weakness, fatigue and lack of energy for a month or more before, and for three weeks before, slight fever in the afternoon. He said that a chilly feeling came on about noon followed by fever and a sense of oppression and suffocation. He also gave a history of a slight diarrhea about the time he commenced to have afternoon fever; he consulted a physician at this time, and was suspected of having incipient pulmonary tuberculosis. At the time of admission, the morning temperature was 98.4, and the afternoon temperature, 101. The pulse and respiration rates increased slightly as the temperature rose; there was some general abdominal tenderness. The tongue was coated, but evidence of any rash or skin eruption was lacking. Five specimens of sputum were negative for tubercle bacilli; the urine was normal; the leukocytes numbered 4,950; the differential count was: polymorphonuclears, 34 per cent; small lymphocytes, 55 per cent; large lymphocytes, 9 per cent. The Wassermann blood test and the Widal test were negative. Roentgen-ray examination showed that the chest was normal. The temperature curve rose gradually with increased remissions resembling the temperature curve of typhoid, and continuing over a period of about twenty days from the date of admission. At the height of the curve, the morning temperature ranged from 90 to 96, mounting from 100 to 104 in the afternoon. The temperature fell by lysis. The patient had several slight exacerbations of afternoon temperature for several days after the morning temperature was normal. He made an uneventful recovery and did not have any fever at all for two weeks prior to his discharge from the hospital, Jan. 10, 1926. He had gained weight and was apparently completely returned to health. In view of negative Widal and negative tubercle bacilli examinations, it seems possible that *Bacillus abortus* might be the causative agent in the infection. Abortus agglutination was positive in 1:500 dilution.

COMMENT

The fact that many persons harbor in their blood streams agglutinins for *Brucella abortus* was demonstrated by Larson and Sedgwick[9] in 1913. Evans considered that a reaction in a 1:20 dilution was suggestive, and should receive further study. In our studies, only reactions complete in 1:50 were considered. Absorption tests were not made because of the unavailability of the patients. However, connection with goats was never reported. In fact, goats in Illinois are a minor factor. This leaves cattle and hogs as the possible sources. As intimate association with hogs is much less prevalent than access to infected cow's milk, cattle are probably responsible for the majority of these cases.

Recently, Francis and Evans[10] have drawn attention to agglutination of *Brucella abortus* by serums from tularemia cases. The possibility of infection among laboratory workers who handle *Bacterium tularense* cultures has so far prevented agglutination tests and agglutinin absorption tests with *Bacterium tularense* in these laboratories.

CONCLUSIONS

Among sixty-nine specimens of blood from fever patients who consistently gave negative Widal reactions, agglutination reactions with *Brucella abortus* (bovine) antigen were positive in five in dilutions of 1:200 or greater. It would seem that undulant fever may be much more common than is ordinarily suspected.

9. Larson, W. P., and Sedgwick, J. P.: The Complement Fixation Reaction of the Blood of Children and Infants, Using Bacillus Abortus as Antigen, Am. J. Dis. Child. **6**: 326 (Nov.) 1913.

10. Francis, Edward; and Evans, Alice C.: Agglutination, Cross-Agglutination and Agglutinin Absorption in Tularemia, Pub. Health Rep. **41**: 1273 (June 25) 1926.

SYMPATHETIC UVEITIS CAUSED BY THE VIRUS OF HERPES SIMPLEX

REPORT OF EXPERIMENTS *

S. R. GIFFORD, M.D.
AND
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OMAHA

In 1924, von Szily [1] reported the results of a series of experiments in which, using material from herpetic lesions of the human cornea, he was able to produce uveitis in the eyes of rabbits, which was transmitted to the other eye. Reasoning that the cause of sympathetic ophthalmia, in view of the almost constant negative results of examinations for the ordinary bacteria, must be of a different nature, he determined to try the effect of an ultramicroscopic virus, which was known to travel by predilection in nerve tissue. The virus of herpes simplex, which was shown by Grüter, Löwenstein and others to cause dendritic ulcers of the cornea and other forms of keratitis, was chosen as possessing the desirable properties. His technic was to inoculate material from a herpetic lesion of the human cornea on the cornea of a rabbit by scarification. After from twenty-four to forty-eight hours, when the characteristic keratitis of the rabbit had developed, he removed the superficial layers of the cornea and inoculated other rabbits by inserting a small fragment in a pouch made by separating the ciliary body from the sclera through a very small corneal incision. A definite uveitis of the inoculated eye occurred uniformly. After about two weeks, when this reaction was beginning to subside, a certain number of animals, about 10 per cent of those inoculated, showed iridocyclitis of the other eye, usually of a more severe form than that occurring in the inoculated eye. Sections of both eyes showed a diffuse infiltration of the whole uveal tract with lymphocytes and epithelioid cells, a picture resembling very much that of fresh sympathetic ophthalmia. The papilla and ocular end of the optic nerve showed a similar infiltration, this being continuous with that in the choroid. In slighter cases the sheaths of the nerve were chiefly affected, and extension to foci of infiltration in the brain was apparently by this route. Sections of the chiasmal region showed the lymphocytic infiltration apparently passing by this route from eye to eye and also extending farther back along the optic tract. Von Szily believes that, while the possibility of other methods of transmission, as by the blood stream, exists, evidence is in favor of the direct transmission by way of the chiasm.

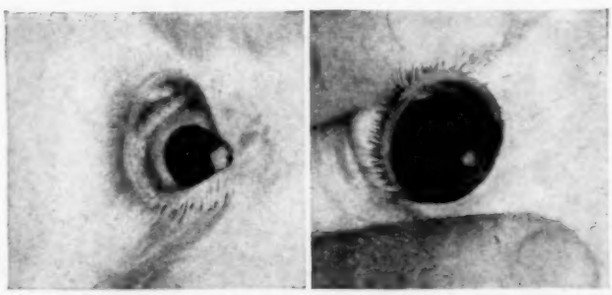

Fig. 1.—Inflammatory reaction in right and left eyes of rabbit V 3.

Besides the experimental uveitis of the second eye, von Szily observed in 50 per cent of his animals the occurrence of a spontaneous herpetic keratitis of this eye from eight to twelve days after inoculation of the first eye in the pouch, a true metastatic herpes corneae, apparently by way of the blood stream.

In this paper, the results are given of inoculations made by von Szily's method, and also by direct injection of herpetic material in the region of the chiasm. Some further experiments were carried out to determine the route by which the second eye was involved, and to prove whether viable herpetic virus was present in the secondarily involved eye. Results of inoculations in rabbits by the method suggested by von Szily of material from one human case of sympathetic ophthalmia are also reported.

As cases of herpetic keratitis are not always available and are usually seen in private practice, away from laboratory animals, the material used was from herpes simplex of the lip, occurring in patients at the university hospital and in several medical students. The virus present in such material is identical in all its properties with that in herpetic lesions of the cornea. Two hundred and sixteen rabbits were used, seventy-six of which were inoculated in pouches according to von Szily's technic. Cultures were taken of the lesions of the rabbits' cornea from which inoculations were made, to preclude the influence of secondary pathogenic microorganisms. Twenty animals were inoculated in the region of the chiasm, injection of a small amount of concentrated material being made by syringe through the orbit and optic foramen. Forty-six were used as controls, different other substances being inserted in the ciliary pouches. The remaining animals were used for primary corneal inoculations or for inoculations from the lesions produced. Seven different strains of herpes were used for inoculation in pouches and three for chiasmal injections.

In the first series of inoculations, as shown in the accompanying table, all the inoculated eyes showed a definite reaction, with congestion, photophobia, deposits on the lens and vitreous opacities. This lasted from three weeks to two months. From thirteen to fourteen days after the inoculation, four animals showed a definite congestion of the second eye, progressing to the picture of severe iridocyclitis. The pupils became small; the iris bulged forward and showed greatly increased vascularity, and in two animals the fundus could not be seen on account of vitreous opacities and exudate on the lens capsule (figs. 1, 6 and 10). The signs of inflam-

Inoculations in Ciliary Pouch

Strain	Number of Animals Inoculated	Number Developing Uveitis of Left Eye	Number Developing Herpes of Cornea
1	9	1 (+++)	0
2	4	1 (+++)	0
3	8	1 (++)	0
4	15	0	0
5	11	1 (++)	1
6	19	0	1
7	10	2 (+)	2
Total animals	76	6	4

* From the Department of Ophthalmology, University of Nebraska College of Medicine.
* Read before the Section on Ophthalmology at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.
* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

1. Von Szily, A.: Klin. Monatsbl. f. Augenh. **72**: 593, 1924.

mation progressed for from three to four days, when the animals were killed and the eye was bisected under sterile precautions and half of it used in inoculations. In two other animals the inflammation was not so marked, showing only as pericorneal and iris congestion, but they were killed at this stage in an attempt to obtain sections of an early process. About 15 per cent

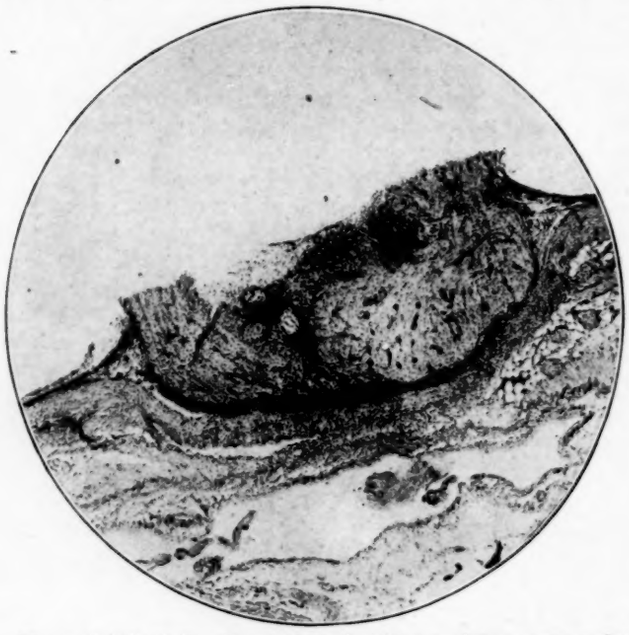

Fig. 2 (rabbit V 3).—Nerve head of right eye, showing mononuclear infiltration.

of the animals inoculated developed convulsions and a tendency to turn and fall toward the inoculated side, signs considered characteristic of encephalitis, and several died. The signs of encephalitis were not so frequent or marked in this series as in the animals used for corneal inoculation, 33 per cent of which showed signs of encephalitis, two thirds of which died. Of the animals developing uveitis in the second eye, two showed signs of encephalitis. Four animals, or 6 per cent, developed a keratitis of the second eye, which corresponded exactly to that described by von Szily. It consisted of from five to twenty-five pin-point nodules starting under the epithelium, and increasing in size till the epithelium broke down over them, and they stained with fluorescein, resembling very much at this stage a dendritic ulcer.

Sections of the inoculated eyes showed a mononuclear infiltration of the choroid and especially of the ciliary body near the site of inoculation, with free cells between the ciliary processes, and in most cases a marked infiltration of the nerve head (figs. 2 and 7). The second eyes showed, usually, a much more extensive involvement of the uveal tract, the whole choroid being from five to twenty-five times its normal thickness, especially in the posterior segment, and densely infiltrated with lymphocytes and epithelioid cells. Giant cells were not seen. In rabbit V 10, this infiltration formed a mass filling about one third of the vitreous, which was seen clinically as a snowy-white mass raised 10 diopters. In several animals (V 3 and V 10) a mononuclear infiltration of the sheaths of both nerves was seen, with nodules of round and epithelioid cell infiltration in the nerve trunk near the chiasm. The brain of rabbit V 3 showed definite perivascular infiltration in the neighborhood of the optic tracts. One animal, L 4, which had shown very slight congestion of the second eye during life, showed a very definite bilateral uveitis on section (figs. 13 and 14).

EXPERIMENTS

Three animals showed a marked sympathetic uveitis, and in one a slighter form of the same condition was produced by inoculation from the third animal.

To summarize the inoculations made from eyes showing sympathetic uveitis, a few corneal inoculations from the uveal tract of the second eye of V 3 and V 10 were negative, but, from V 21, at least one corneal inoculation was definitely positive, while of ten inoculations in pouches, one, V 33, developed uveitis of the second eye. Corneal inoculation from the second eye of this animal was positive, so that the presence of active iritis in the second eye may be said to have been proved in this case. From rabbit L 11, which showed some iris congestion and herpetic keratitis, corneal inoculations from the right and left nerves were positive. From X 1, which showed only moderate iris congestion, corneal inoculation from the chiasm was positive, while that from the right nerve was negative.

In all these animals cultures from the material before inoculation showed no pathogenic bacteria, and stains for bacteria were negative.

In the second series of twenty inoculations made as nearly into the chiasm as possible, one rabbit (rabbit N 1, strain 9) inoculated directly with material from an herpetic lesion, developed signs of severe iridocyclitis in both eyes, starting two days after inoculation, with congestion, cloudy aqueous, hemorrhages in the iris and exudate in the pupil, increasing, especially in the right eye, till the animal was killed (fig. 15).

Four other animals were inoculated directly from a second herpetic lesion, one of which developed an

Fig. 3 (rabbit V 3).—Left eye, as seen under low power, showing thickening and infiltration of whole uveal tract.

herpetic keratitis of one eye, and two a marked dilatation of the retinal vessels, with slight blurring of the nerve borders. (This was hard to determine exactly, on account of the medullated nerve fibers normal in the rabbit.) One of the last animals died in eight days. Of five inoculated from the same lesion after transfer to a rabbit's cornea, one showed congestion of the

retinal vessels and died in three days. The others showed no reaction. Ten animals were inoculated directly from a third case of herpes simplex. Of these, one developed definite iris congestion of both eyes, with blurring of nerve borders and paralysis of both hind legs, and died eleven days after inoculation. One developed keratitis of the right eye, and slight pericorneal

Fig. 4 (rabbit V 3).—Left nerve near chiasm, showing foci of round-cell infiltration.

congestion of the left eye, and died after sixteen days. In four congestion of the retinal vessels was noted, and three of these died. Four others died without showing any ocular involvement.

Control animals were treated as follows: In four, the pouch alone was made and nothing inserted. These showed only slight operative reaction and no signs of inflammation of the other eye. In five the pouch was made and a small piece of sterile glass was inserted. Much to our surprise, two of these animals developed a fairly severe reaction in the first eye, and later showed inflammation of the second eye, a moderately severe uveitis, as was shown in sections. These were inoculated at the time of an epidemic among the rabbits, a large number of which died with convulsions and signs of encephalitis, and it was thought probable that a cage epidemic of herpes encephalitis was occurring, as described by Goodpasture and others. It seemed possible that these rabbits could have had herpes virus, which was inoculated in the pouch with the piece of glass, in a latent condition in their conjunctival sacs. All experiments were stopped for six weeks, when a new batch of twenty rabbits was submitted to the same procedure, with negative results in all. Twelve rabbits were inoculated with a culture of *B. tuberculosis* in a ciliary pouch. All showed more or less severe reaction of the first eye, and five died with signs of generalized tuberculosis. A sixth, when almost moribund, two and one-half months after inoculation, developed panophthalmitis of the second eye, with rupture and escape of most of the ocular contents, and died soon after. A seventh, after three months, developed a keratitis of the second eye, and died.

Since von Szily's report, we have seen only one case of human sympathetic ophthalmia which afforded an opportunity for inoculations. This was referred by Dr. Gregg of Sioux Falls, S. D. The left eye had been operated on by iridectomy for increased tension five weeks before, nothing abnormal being noted at operation. Five days before we saw the patient, he had noted a "flickering" before the right eye, and at that time Dr. Gregg advised removal of the blind left eye. This was refused; but vision decreased steadily until, when we saw him, it was only ability to count fingers at 6 inches. The right eye was markedly congested, with a shallow anterior chamber and exudate in the pupil. The left eye showed the wound well healed, without iris inclusion, but with the pupil drawn up toward the scar and occluded. A diagnosis of sympathetic opththalmia was made and immediate enucleation of the left eye advised, which was done by Dr. Gregg the following day. Under intensive treatment with pilocarpine sweats, large doses of sodium salicylate, atropine and ethylmorphine hydrochloride (dionin), the eye became quiet and vision improved to 6/30, which has been maintained up to the present. We are indebted to Dr. Gregg for notes on the case and for the specimen, which was obtained by one of us in Sioux Falls. This was dipped in alcohol, coated with several layers of collodion, and placed in sterile gauze. It was bisected the same evening in Omaha, under sterile precautions, and one half used for inoculations and cultures.[2] Ten rabbits were inoculated in pouches with a piece of uveal tissue, all with negative results. Corneal inoculations were made in three rabbits, one of which showed a slight reaction lasting three days, which was considered as probably due to the scarification alone. Aerobic and anaerobic cultures were negative. Sections of the eye showed a melanosarcoma filling two thirds of the vitreous. The rest of the choroid was infiltrated with round and epithelioid cells and was from six to ten times its normal thickness. The tumor

Fig. 5 (rabbit V 3).—Brain near chiasm, showing perivascular infiltration.

evidently arose in or just behind the ciliary body and was in contact with the corneal wound. The characteristic infiltration of sympathetic ophthalmia surrounded the tumor entirely.

2. This method of coating in collodion not only preserves the moisture in the tissues in sterile condition but also keeps the eye from collapsing when it is bisected for inoculations or cultures, so that the other half is not spoiled for sections.

REVIEW OF LITERATURE

A recent monograph by Doerr [3] so completely reviews recent experimental and clinical observations on herpes that it will be unnecessary to go into the subject of herpes in general. American readers are familiar with the interesting facts recently brought out about it through the work of Goodpasture and Teague,[4] and Friedenwald [5] has recently given a good summary of this work and his own confirmation of it, for ophthalmologists. It will be sufficient to recall that simple herpes of the face and lips, herpes progenitalis, and certain forms of keratitis are due to a filtrable virus having the common property of producing keratitis when inoculated on the rabbit's cornea. A number of animals so inoculated develop signs of encephalitis, which often results in death, and the characteristic lesion of the rabbit's cornea can be produced from material taken from the lesions in the brains of these animals, and especially from the ganglion of the fifth nerve.[5] This apparently shows the transmission of the virus along the ciliary nerves from the cornea to the central nervous system. Goodpasture [6] has shown that inoculation into the masseter muscle is followed by lesions in the brain stem where the axis cylinders of the motor fifth nerve break up, and the same transmission by nervous tissue has been shown in other nerves. Although Goodpasture and Teague have presented some evidence that herpes zoster may be due to a related virus, there are so many differences between the two diseases and the reactions obtained from their lesions that Doerr believes they must be considered as separate entities. The virus of herpes simplex is present not only in the lesions, but also in the saliva of persons subject to herpes, taken at times when no lesions are present, and in that of normal persons. Grüter has found it on the normal conjunctiva, and Busacca [7] recently found it in the tears of two persons subject to recurrent herpes; that is, he obtained positive rabbit inoculations with concentrated lacrimal secretion. This is interesting in view of the possibility that a foreign body which penetrates the conjunctiva may carry herpetic virus into the eye.

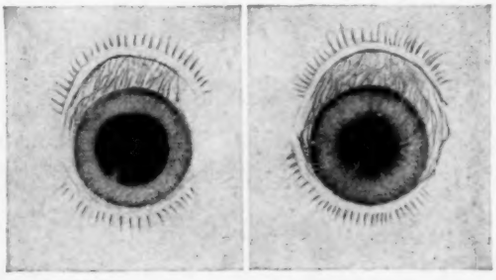

Fig. 6.—Appearance of right and left eyes of rabbit V 10.

Before von Szily's report, a few observations had been made of ocular involvement occurring in the course of herpes encephalitis in rabbits. Thus Grüter,[8] in discussing von Szily's paper, stated that he had observed, after intracerebral inoculation with herpes material, a spread of the inflammatory process to the spinal cord, both optic nerves and other cranial nerves, reaching the eye and causing optic neuritis on one side. He believes that von Szily's results, like those which occurred in his own animals, represent simply the involvement of the second eye as an incident in a general invasion of the central nervous system. He calls attention to the fact that sympathetic ophthalmia has never been reported in a case of herpes corneae, and believes that the herpes virus is not the cause of sympathetic ophthalmia. He admits, however, that von Szily has demonstrated the possibility of a filtrable virus passing from one eye to the other, which is all that was claimed by that author, and agrees with Axenfeld's opinion that some invisible virus is probably the cause of sympathetic ophthalmia. Mariani,[9] after subdural inoculations, saw uveitis and keratitis. He found, after dendritic ulcer of the cornea, a small-cell infiltration of the sheaths of the optic nerve, indicating that the virus may reach the nerve by this method of inoculation. To determine whether the interior of the eye was invaded by the active virus, Grüter tested the aqueous four, six and eight days after positive corneal inoculations, and obtained some positive reactions after four and six days. Uveal tissue from one of two eyes tested on the sixth day gave positive inoculations. This agrees with the severity of the reaction often seen in such eyes, with obvious involvement of the iris and apparently severe iridocyclitis.

Since von Szily's report, at least two observers have carried out his suggestion of testing material from human sympathetic ophthalmia by rabbit inoculation. Marchesani,[10] from one unquestionable human case, inoculated three rabbits subdurally with uveal emulsion and seven with a piece of uveal tissue inserted in a ciliary pouch. No reactions occurred in any of the ten rabbits.

Volmer [11] has seen five cases, in which the first eye was enucleated, showing on section the picture of sympathetic ophthalmia, and has used the material for inoculation of sixty rabbits in pouches. Of these, three animals showed iridocyclitis of the second eye. In two, other signs of tuberculosis were present, and the uveitis was considered tuberculous. In the other, which developed miosis and exudate in the anterior chamber, sections showed hyperemia of the whole uveal tract, and an exudate between the ciliary processes, the picture of herpetic uveitis, but not of sympathetic ophthalmia. Possibility of a stall infection from other animals with herpes could not be ruled out.

An account of all the previous attempts to reproduce sympathetic ophthalmia experimentally is unnecessary. An article by Gifford [12] reviews all such work up to 1919.

The results of Deutschmann's experiments, in which he observed papillitis in the second eye of rabbits after inoculation of pus cocci in the first eye, and in which he traced the cocci by way of the chiasm to the second optic nerve, were not confirmed by most subsequent observers, and his technic has been criticized. Besides this, however, Deutschmann did apparently produce the picture of sympathetic ophthalmia in rabbits and apes by inoculating one eye with tissue from a human sympathogenic eye, demonstrating a diplococcus along the nerves and chiasm; this is probably the strongest piece of evidence in favor of the bacterial theory.

Most examinations for bacteria have been negative, and while a few writers have reported organisms in the

3. Doerr, R.: Zentralbl. f. d. ges. Ophth., 1925, pp. 705, 833; **15**: 1, 313, 537.
4. Goodpasture, E. W., and Teague, O.: J. M. Research **44**: 121-139 (Dec.) 1923.
5. Friedenwald, J. S.: Arch. Ophth. **52**: 105 (March) 1923.
6. Goodpasture, E. W.: Am. J. Path. **1**: 1-47 (Jan.) 1925.
7. Busacca: Arch. f. Augenh. **95**: 253, 1925.
8. Grüter: Arch. f. Augenh. **95**: 180, 1925.
9. Mariani, G.: Arch. f. Dermat. u. Syph. **147**: 259, 1924.
10. Marchesani: Klin. Monatsbl. f. Augenh. **75**: 218, 1925.
11. Volmer in Discussion on Marchesani (footnote 10).
12. Gifford, Harold, in Encyclopedia of Ophthalmology **16**: 12369, 1920.

first eye, usually common inhabitants of the conjunctival sac, examinations of the second eye have been, except for two doubtful cases, negative. Verhoeff [13] has found in both eyes in one probable case peculiar bodies, consisting of a central stem with clublike processes, which he considers are undoubtedly organisms, and probably a form of fungus related to the actinomyces. The his-

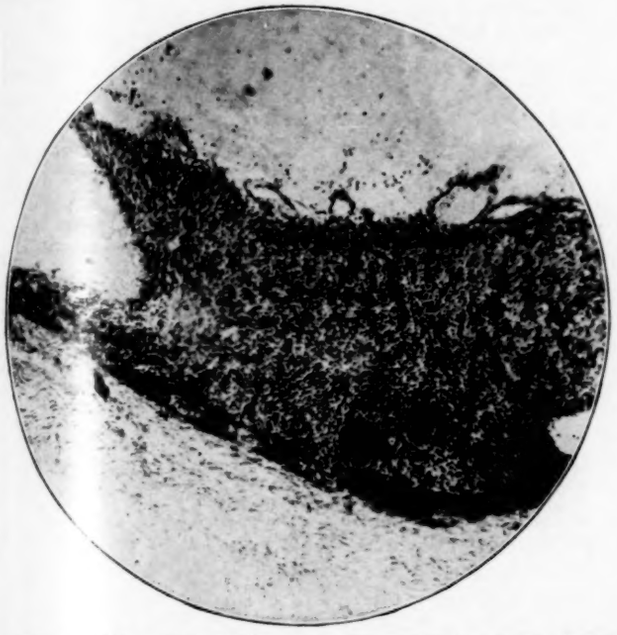

Fig. 7 (rabbit V 10).—Right eye, as seen under low power, showing nerve head and choroid.

tologic picture was not typical of sympathetic ophthalmia, as many small abscesses were present, in which the organisms were found. The organisms were discovered in section, so no cultures were made. In spite of these isolated findings, it may be said that no organism has been demonstrated in cases of sympathetic ophthalmia which satisfies the most important postulates of a specified causative organism.

The failure to demonstrate a bacterial cause has induced the proposal of other theories, of which Elschnig's anaphylactic theory, well known in this country and accepted by many on account of the work of Woods,[14] is the most important. Woods demonstrated the possibility of ocular sensitization to uveal pigment by injecting dogs with pigment and then, after a sufficient time for sensitization had occurred, by perfusing their heads with pigment, observing miosis and retinal hemorrhages. By injecting uveal pigment in the vitreous of dogs, and two weeks later by giving a large intraperitoneal injection of the same substance, he produced in three animals a marked iridocyclitis of the second eye. This was characterized histologically by mononuclear infiltrations of the iris and ciliary body and of the choroid chiefly in its anterior part. In later work, he has shown an absence of antibodies to uveal pigment in the serum of patients with sympathetic ophthalmia and sympathetic irritation, and he and Knapp [15] have treated one case of sympathetic ophthalmia by desensitizing doses of uveal pigment, with an apparently excellent result. This theory offers an attractive explanation of the few cases of so-called spontaneous sympathetic ophthalmia occurring without a penetrating wound, most often in patients with melanosarcoma of the choroid. There are many objections to it, however, most of which are summarized in Gifford's article. It involves a very complicated sequence of events, the most important of which—sensitization to one's own uveal pigment with subsequent reaction in the second eye—has never been demonstrated experimentally. On such a theory, sympathetic ophthalmia would be expected to occur fairly often following any chronic iridocyclitis, whereas it actually occurs almost exclusively following a penetrating wound, the "spontaneous" cases being the greatest rarities. Elschnig's assumption that a condition of lowered resistance is necessary is opposed by the common occurrence of sympathetic ophthalmia in otherwise healthy individuals. Since sensitization is assumed to be complete before the reaction in the second eye occurs, enucleation after this event would theoretically be of no benefit, whereas clinically it has proved of the greatest benefit. The very frequent occurrence of optic neuritis in the second eye, sometimes as practically the only symptom, is hard to explain on Elschnig's theory, as reaction to uveal pigment would not be supposed to affect the nerve that is free of pigment. The histologic picture of sympathetic ophthalmia of the second eye is characterized by infiltration, chiefly of the posterior part of the choroid, while in Wood's experimental animals, this part was free of inflammation. Fuchs,[16] since von Szily's report, has examined all the sections of sympathetic ophthalmia in the Vienna collection to determine how far the nerves were involved. Of seventy-one eyes with sections of the nerve, fifty-four showed some signs of inflammation in the nerve or its sheaths. In twenty-four this inflammation was marked, usually affecting the

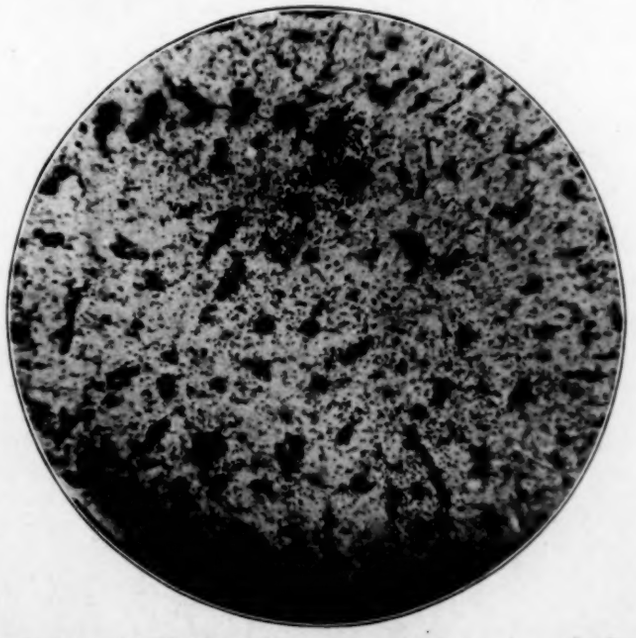

Fig. 8 (rabbit V 10).—Left nerve near chiasm, as seen under low power, showing foci of epithelioid cells.

pial sheath and adjacent nerve substance, and consisting chiefly of round-cell infiltrations. In four cases, nodules of epithelioid cells with some giant cells were found deeper in the nerve trunk, fairly far back, from 3 to 8 mm. from the eye. Fuchs believes that the

13. Verhoeff, F. H.: Arch. Ophth. **53**: 517 (Nov.) 1924.
14. Woods, A. C.: Anaphylactic Basis of Sympathetic Ophthalmia, Tr. Sec. Ophth., A. M. A., 1917, p. 133. Arch. Ophth. **47**: 161 (March) 1918; Immune Reactions Following Injuries of Uveal Tract, J. A. M. A. **77**: 1317 (Oct. 22) 1921; Arch. Ophth. **51**: 451 (Sept.) 1922.
15. Woods, A. C., and Knapp, A.: Arch. Ophth. **51**: 560 (Nov.) 1922.
16. Fuchs, A.: Ztschr. f. Augenh. **56**: 275, 1925.

infiltration reaches the nerve from the choroid around the vessels of the circle of Zinn, that it occurs very commonly in sympathetic ophthalmia and that it would be more often found if the nerves were examined far enough posteriorly.

The toxic theory of sympathetic ophthalmia, that not bacteria but their toxins or toxins of broken down tissue reach the second eye, seems hardly tenable in view of the frequent persistence of inflammation after removal of the first eye. It seems best, however, to mention some recent work of Guillery,[17] who placed cultures of tubercle bacilli in the vitreous of three rabbits, and observed in all three an iridocyclitis of the second eye resembling sympathetic ophthalmia.

On the whole, most of the facts which we know regarding sympathetic ophthalmia seem most intelligible on the assumption that some living organism is present in both eyes. In cases with a penetrating wound the simplest assumption is that such an organism is introduced into the wound. If the eye is enucleated early

Fig. 9 (rabbit V 10).—Left eye, as seen under high power, showing round-cell and epithelioid infiltration.

enough, no germs reach the other eye and all is well. If it is enucleated before any signs of sympathetic ophthalmia develop in the other eye and, still, the disease develops later, we must assume that the germs have already reached the other eye and require a period of development before producing symptoms, or that they are in the blood stream or in some lymph node, whence they reach the second eye later. The biologic theory of Gifford, according to which the germs surviving the struggle for existence in the first eye possess an increased capability of growing in uveal tissue when they reach it by the blood stream, is especially applicable to these cases. If the first eye is enucleated and the inflammation in the second eye subsides, this is only what occurs when we remove any focus of infection, allowing the secondarily infected tissue to take care of what germs have already reached it; while, if it does not subside, it must be assumed that enough have already arrived so that the secondary focus is unable to destroy them. In cases occurring after subconjunctival scleral rupture without a penetrating wound, it is easy to believe that organisms may reach the inside of the eye through the intact conjunctiva, or through a microscopic lesion in it, as occurs in late infections after trephining. For cases with melanosarcoma, the explanation is not so simple on any theory, and the bacterial theory must here stretch a point and assume that the necrotic tissue allows germs from some other focus to invade it, producing a focus from which germs may reach the other eye.

If we accept Deutschmann's results, we must believe that cocci, and perhaps several kinds of cocci, are capable of causing sympathetic ophthalmia. The negative results of many more equally good observers, however, indicate that another cause must be present, in probably the majority of cases. The assumption of an ultramicroscopic virus as the cause seemed rather far fetched, but now that von Szily has demonstrated that such a virus can produce the clinical and histologic picture of sympathetic ophthalmia, this idea must be considered seriously. Naturally, all the arguments in favor of a bacterial cause would apply equally well to a filtrable virus as the cause. Von Szily did not claim to have proved, nor has the present work attempted to prove, that the herpes virus itself is the cause of sympathetic ophthalmia. All that has been done is to prove that it can produce the picture of the disease in the rabbit; hence the possibility that a virus, perhaps not dissimilar to the herpes virus, may be the cause.

What is necessary for proof or refutation of this theory is the result of inoculations from human cases of sympathetic ophthalmia. Many negative results may be expected, since Goodpasture has shown how rapidly such a virus as the herpes virus disappears from an original focus. From five to six days after inoculation, it is difficult to obtain positive inoculations from a rabbit's cornea, so it is easy to understand negative results from an eye weeks or months after the process in it has begun. This difficulty was seen in the present experimental cases in which enucleation was done after a much shorter time. Positive results would be more probable in the rare cases in which the second eye is enucleated. It could hardly be expected that the picture of sympathetic ophthalmia would be produced in the inoculated animal, since the transmission from one eye to the other probably depends on many factors. We suggest that corneal inoculations with emulsified uveal tissue are probably most likely to be successful, and we would consider the production of a definite keratitis transmissible to other animals and free from ordinary bacteria as highly significant.

It is even possible that the herpes virus itself may cause sympathetic ophthalmia, though it is not wished to emphasize this possibility. Its common presence in the nasopharynx and the fact that it has been found in the conjunctival sac make the supposition far from absurd that it might be carried into the eye through a penetrating wound. It has been found in the blood stream, and in cases of "spontaneous" sympathetic ophthalmia, it or a similar virus might conceivably be in a latent state, ready to invade necrotic tissue.

As to the route which the causative agent, be it bacterium or virus, takes to reach the second eye, the work of von Szily and the present work seem to indicate plainly that the herpes virus in the rabbit passes by way of the optic nerves and chiasm. The definite pathologic changes found in each nerve and the record of positive corneal inoculations from points along this tract show that this is at least one route and probably

17. Guillery: Arch. f. Augenh. 94: 143, 1924.

the principal one. If any inference may be drawn from this to human sympathetic ophthalmia, it is added evidence in favor of transmission by the nerves and chiasm. The work of Fuchs is important evidence in favor of this route, which already could point as a powerful argument to the frequency of optic neuritis of the second eye as the earliest symptom of the disease.

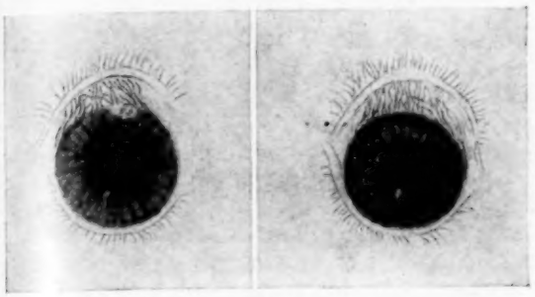

Fig. 10.—Inflammatory reaction in right (*A*) and left (*B*) eyes of rabbit V 21.

An interesting problem is presented by the occurrence of herpes corneae in the second eye. This probably occurs, as von Szily believed, by metastasis through the blood stream. Mariani was able to produce herpes corneae by intravenous inoculation. It is hard to explain, however, the involvement of only the opposite cornea without other foci elsewhere, and it is just possible that the virus travels by the ciliary nerves, crossing over to the opposite fifth nerve nucleus and down the ciliary nerves on the opposite side. Such a spread across the midline was demonstrated in sections by Goodpasture between the two fifth motor nuclei after inoculation in the masseter muscle. It is, of course, possible that our corneal lesions occurred by direct external transmission from one cornea to the other, but the beginning of the lesion as an infiltrate, before any breaking down of the epithelium over it is visible speaks against this.

CONCLUSIONS

1. The present work confirms the finding of von Szily that the virus of herpes simplex, when inoculated in a ciliary pouch, will produce in a certain percentage of rabbits a uveitis of the second eye resembling, clinically and histologically, the picture of human sympathetic ophthalmia.

2. It was also possible to produce uveitis of both eyes by injection of the virus in the region of the chiasm.

3. The active virus could be demonstrated in the second eye by positive corneal inoculations; and, in one case, uveitis of both eyes was produced by inoculation from the second eye to a ciliary pouch. A further positive corneal inoculation from the second eye of this animal was obtained, showing transmission of the virus through three generations from the first sympathizing eye.

4. Herpes corneae of the opposite eye occurred in 6 per cent of the animals inoculated in a ciliary pouch.

5. Sections indicated extension of the process by way of the nerves and chiasm to the other eye, and this was confirmed by positive inoculations from points along this route.

6. Inoculations from a human case of sympathetic ophthalmia were negative.

7. The possibility of a filtrable virus with neurotropic properties similar to those of the herpes virus being the cause of sympathetic ophthalmia is given some support by this work.

ABSTRACT OF DISCUSSION

DR. EVERETT L. GOAR, Houston, Texas: Sympathetic ophthalmia has been the subject of much research within the last several years. We are still in the dark concerning the two most important factors; viz., the etiology and the mode of transmission from the exciting to the sympathizing eye. Research workers are divided into two schools. One believes the disease to be an anaphylactic phenomenon, with transmission necessarily therefore by the blood stream. The other school holds to the theory that it is caused by a filtrable virus, perhaps an ultramicroscopic organism, with transmission by way of the optic nerves and chiasm. It cannot be said that either theory is yet proved. Dr. Gifford does not claim that he has proved the cause of sympathetic ophthalmia, but only that he has confirmed von Szily's work in reproducing a condition simulating the disease by the inoculation into a ciliary pouch of the virus of herpes simplex. I believe that he has substantiated that claim. It must be remembered, however, that an iridocyclitis produced in the second eye of an animal does not necessarily prove that it is a true sympathetic ophthalmia of the type found in man, though it may simulate the condition both clinically and microscopically. It will be necessary to produce the disease in the second eye of animals by inoculations from the affected human eye before we can accept this theory as fulfilling one of Koch's important postulates requisite for a definite bacterial etiology. One of the striking features in Dr. Gifford's experiments is the number of animals that developed encephalitis, a larger percentage than that in which iridocyclitis occurred in the second eye. This might be expected in a disease that travels by direct extension along nerve tissue; but I believe that it is not a complication occurring in cases of sympathetic ophthalmia in man. This indicates that while the virus of herpes simplex may produce lesions simulating

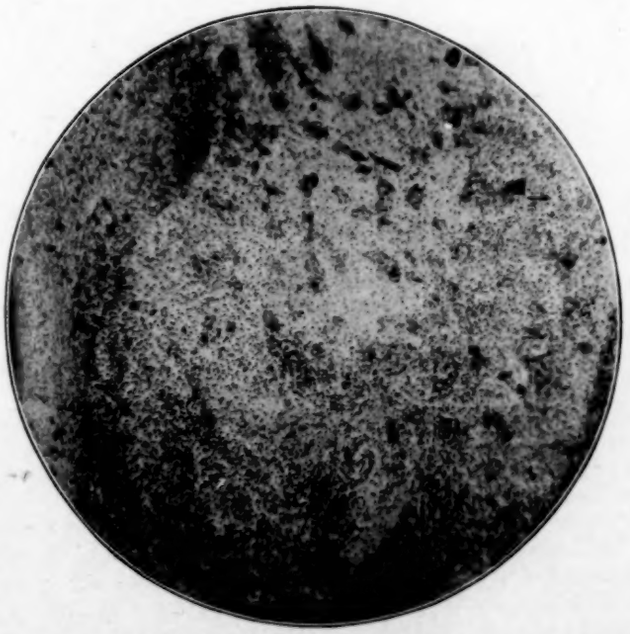

Fig. 11 (rabbit V 21).—Right eye, showing diffuse round-cell and epithelioid infiltration of nerve.

sympathetic ophthalmia in the rabbit, it is still more likely to produce encephalitis and is therefore not the cause of the disease that occurs in man. Naturally, a virus that frequently causes encephalitis by extension along nerve tissue will produce cellular infiltration, and it seems more plausible that the findings reported are a general infiltration by extension, affecting adjacent nerve tissue when it is available, and occasionally the choroid of the opposite eye, than a specific choice by the virus of the optic nerve and chiasm. I do not believe that it has been definitely established that the route

of transmission of sympathetic ophthalmia is by the optic nerves and chiasm.

DR. ARNOLD KNAPP, New York: In one case, uveal tissue from a case of sympathetic ophthalmia was implanted in a scleral pocket of a rabbit's eye, but without any result.

DR. S. R. GIFFORD, Omaha: I only want to add one remark in regard to the attractiveness of the theory that a filtrable virus may be the cause of sympathetic ophthalmia. We know that previous attempts to produce sympathetic ophthalmia by bacteria have been negative, and also that examinations for ordinary bacteria in these eyes have been negative, and the theory of a filtrable virus would explain all these negative examinations. We are beginning to learn a great deal about the filtrable viruses in the last few years, especially through the work of the French and German schools. They are coming to be recognized as of more importance. In answer to the objection of Dr. Goar as to the absence of encephalitis in human sympathetic ophthalmia, there have been found several strains of the herpes virus, some of which do not affect the nervous system. It is easily possible that a filtrable virus might have an affinity for uveal tissue in the human being as in the rabbit and still might not cause encephalitis in man because conditions are not the same as in the rabbit. In regard to the probable results of inoculations from human cases, it will not be necessary, in my opinion, to produce sympathetic ophthalmia in the second eye of rabbits for the reason, as previously stated, that it occurs in only 10 per cent of animals under experimental conditions. If virus is present, a corneal inoculation, on the other hand, should give 100 per cent positive results. I would therefore suggest that when an eye with sympathetic ophthalmia is enucleated it is worth while to test for possible virus by inoculations from the uveal tract to the cornea of rabbits.

600 Brandeis Theater Building.

REVERSE WAVES IN THE PARS PYLORICA OF THE STOMACH*

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One of the most interesting features about gastrointestinal peristalsis is the almost complete barrier which the pyloric ring places between the gastric and the duodenal waves. As Cannon pointed out years ago, the peristaltic contractions coursing over the stomach fade away as they approach this ring, and the same thing happens to the rhythmic segmenting movements in the duodenum. In recent years, however, it has been found that this block is not absolute, and that influences of some kind can cross over, so that peristaltic waves approaching the pylorus are often closely associated with tonus waves in the duodenum and with peristaltic rushes down the bowel.[1]

There is some evidence also that just as the main gastric rhythm of three waves a minute often captures the tonus rhythm of the duodenum[2] and causes it to follow for a while, so the duodenal segmenting rhythm (from eighteen to twenty-four a minute) may sometimes capture a similar rapid rhythm in the stomach and hold it for a few seconds or minutes. The small gastric waves are well shown in figure 2 *A*. Much more definite, however, are the observations which my assistants and I have made from time to time in the last few years, showing that waves of reverse peristalsis can start at the pylorus and run orad over the antrum, particularly when there is back pressure in the small bowel due to mechanic or dynamic obstruction. These waves appear sometimes when a reverse wave in the duodenum approaches the pylorus, and they thus give the impression of being a continuation of that wave. The resultant graphic records, some of which are shown in figure 2 *B*, *C* and *D*, are so characteristic that they can be recognized at a glance.

The animals used were rabbits. They were given, through the stomach or rectal tube, for each kilogram of body weight, 2.2 Gm. of ethyl carbamate. The lower spinal cord has generally been pithed; the abdomen has been opened under a bath of warm Locke's solution; the posterior lip of the pylorus has been held down by a small clamp, and threads have been run from tiny wire serrefines on different parts of the bowel and the ventral wall of the stomach to heart levers writing on a drum.

Ordinarily, with regular peristalsis running over the stomach, one obtains a record something like that in figure 2 *A*. The picture varies according to the way

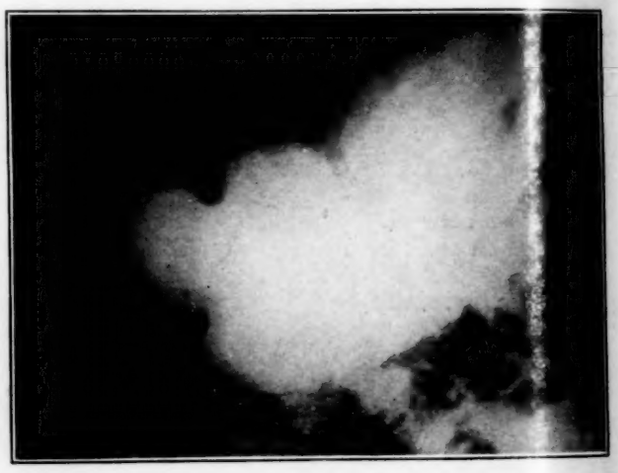

Fig. 1.—Pyloric region of the stomach of a man, showing small contractions.

in which the peristaltic waves approach the pylorus. Some fade out, some change into systoles of the pars pylorica, some are reinforced by systoles, or by waves originating at the orad end of the antrum, and some are blocked, apparently by premature contractions of the pyloric ring.

The particular type of rhythmic activity with which I am concerned at this time is depicted in figure 2 *B*, *C* and *D*. Most of the records from which these examples were taken were made on rabbits which had slight intestinal back pressure or obstruction. Some had had the bowel tied across either that day or one or two days before, some had had the bowel pinched in a clamp so as to make a bruised and hemorrhagic ring; others had had a little turpentine or dilute phenol (carbolic acid) injected a day or two before into the sacculus rotundus or into a Peyer's patch. By watching carefully it could be seen that the first rise of the series of waves on the record was generally due to a contraction which ran normally from the middle of the stomach to the pylorus. The subsequent rises were due either to small contractions originating at the orad edge of the reddish antral muscle and traveling to the pylorus, or

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* From the Division of Medicine, Mayo Clinic.

* Work done at the George Hooper Foundation for Medical Research, University of California Medical School, and the Division of Medicine, Mayo Clinic.

1. Alvarez, W. C.: The Mechanics of the Digestive Tract, New York, Paul B. Hoeber, 1922, pp. 22, 74 and 97. Wheelon, Homer; and Thomas, J. E.: Motility of the Duodenum and the Relation of Duodenal Activity to That of the Pars Pylorica, Am. J. Physiol. **59**: 72-96 (Feb.) 1922.

2. Alvarez, W. C.: Tonus Rhythms in the Bowel, Am. J. Physiol. **74**: 181-187 (Sept.) 1925.

to systolic types of gastric or local contractions, or to definite reverse waves which appeared at the pylorus and ran back to the orad edge of the antral muscle.

While using the roentgenoscope, I have occasionally seen such waves in man, particularly in cases of duodenal ulcer associated with some obstruction at the pylorus. There the conditions are somewhat similar to those produced in the animal experiments. Figure 1 shows a type of small contraction which is seen sometimes in roentgenograms of the pars pylorica in man, and which I strongly suspect corresponds to what is depicted in figure *2 B, C* and *D*. I believe that as time goes on we shall learn to recognize these small waves more often; and it may be that eventually they will be found to have something to do with the production of the discomfort, pain and feeling of indigestion which are associated with the various lesions that produce back pressure in the upper small bowel. It may be also that this type of reverse wave running backward a little way from the pylorus is normal in the dog and other carnivora, in which it serves to delay the passage of solid particles of muscle and bone into the bowel.[3]

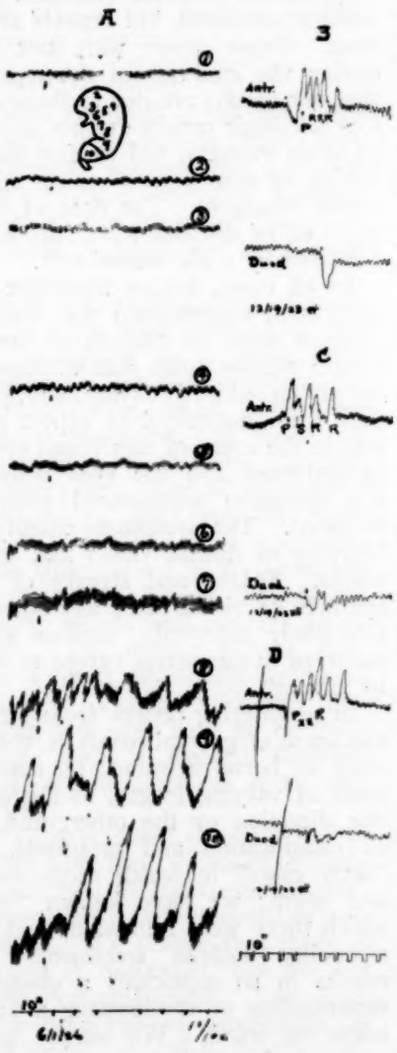

Fig. 2.—*A*, simultaneous records from ten different parts of the gastric wall of a rabbit. The figures in circles correspond with those on the diagram, and show where the record-threads were attached. Dots represent synchronous points. The time record represents intervals of ten seconds. The frequent upward and downward swings of the levers were due to respiratory movements. The independence between the movements in the fundus and pars pylorica is evident. Normal peristaltic waves were coursing over the antrum. *B*, *C* and *D* show simultaneous records from the pars pylorica and the duodenum. *P* indicates a peristaltic wave coming from the body of the stomach; *X*, a wave originating at the orad end of the pars pylorica; *S*, a systolic type of contraction, and *R*, a reverse wave beginning around the pylorus.

The student of intestinal obstruction will doubtless be interested to find that reverse waves may run over the stomach early in the course of a mild dynamic obstruction made low in the bowel. In most of these experiments I have observed what has been commented on by others: that the intestinal contents do not ordinarily go down the bowel to pack up against the obstruction. The bowel immediately above the obstruction is often empty, and the most striking signs of stagnation are noted in the duodenum. It was this back pressure, distending the duodenum, which seemed to give rise to the reverse peristalsis in the antrums of the stomachs studied. Hence it is, probably, that nausea and vomiting can take place early in the course of intestinal obstruction, long before the bowel has shown any signs of filling up orad to the lesion.

3. Klein, Eugene: Gastric Motility: III. The Mechanism of the Pylorus, Arch. Surg. **12**: 1224-1254 (June) 1926.

SUMMARY

Reverse waves have been seen in the pars pylorica of the stomachs of rabbits suffering from mild, dynamic obstruction of the small intestine.

Similar observations have been made in man, in whom, as in rabbits, the reverse waves have been associated with others running aborally. It is possible that these reverse waves account for some of the distress and feelings of indigestion complained of by persons with duodenal ulcer and intestinal obstruction.

TRYPARSAMIDE IN THE TREATMENT OF GENERAL PARALYSIS*

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AND
GEORGE WILSON, M.D.
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Tryparsamide, a drug perfected by Jacobs and Heidelberger[1] of the Rockefeller Foundation for the treatment of trypanosomiasis, was early suggested for use in syphilis, especially neurosyphilis. Those who first employed it soon discovered its inefficiency in the treatment of early syphilis, so that its use now is practically confined to trypanosomiasis, neurosyphilis and, by a few men, in states of lowered nutrition due to syphilis or other diseases.

The properties and the results of its experimental and early clinical use in trypanosomiasis were first reported by Brown and Pearce.[2] Tryparsamide is a crystalline atoxyl derivative and a derivative of pentavalent arsenic. Experimentally,[3] it was shown to be much less toxic than the drugs ordinarily used in the treatment of neurosyphilis, and in addition it has little cumulative action, although the margin of safety is narrow. The difference between a lethal and a toxic dose is small, but toxic doses can be repeated at comparatively short intervals without any impairment of function. The drug has a remarkable power to stimulate vital activity and to bring about an improvement in the appearance, activity and weight in experimental animals. It is much less irritant than the ordinary arsenicals, and its only unfavorable property is a tendency to produce ambylopia in a small percentage of cases. Although its power to destroy spirochetes in ordinary doses is lower than other arsenicals in use, its power to stimulate the organism to spontaneous cure is far greater. It was early recognized to be more penetrable[4] than the ordinary arsenicals, and this being

* Read before the Section on General Medicine, College of Physicians, Sept. 27, 1926.

* From the Neurological Department, University of Pennsylvania School of Medicine, and the Psychopathic Service of the Philadelphia General Hospital.

1. Jacobs and Heidelberger: J. Am. Chem. Soc. **41**: 1581, 1917; J. Exper. Med. **30**: 411 (Nov.) 1919.

2. Pearce, Louise: Studies on Treatment of Human Trypanosomiasis with Tryparsamide, J. Exper. Med. (supplement) **34**: 1 (Dec.) 1921. Brown, W. H., and Pearce, Louise: Tryparsamide: Its Actions and Use, J. A. M. A. **82**: 5 (Jan.) 1924.

3. Tryparsamide, J. A. M. A. **80**: 1521 (May 26) 1923.

4. Voegtlin, Carl; Smith, M. I.; Dyer, H., and Thompson, J. W.: Penetration of Arsenic into the Cerebrospinal Fluid, with Particular Reference to Treatment of Protozoal Infections of the Central Nervous System, Pub. Health Rep. **38**: 1003 (May 11) 1923.

the most desirable [5] property of a drug to be used in the treatment of syphilis in the most inaccessible portion of the body, viz., the central nervous system, it was early tried in the treatment of general paralysis.

The first reports of the use of the drug in the treatment of this disease and other forms of neurosyphilis were by Lorenz, Lovenhart, Bleckwein and Hodges [6] and by Moore, Robinson and Keidel,[7] all of whom reported favorable results after three years' use. Consequently, the new drug was hailed with interest.

Early in 1923, a supply of the drug was made available for use in the psychopathic department of the Philadelphia General Hospital. Ebaugh and Dixon [8] have made a preliminary report of this series of cases, and our study is a continuation of theirs with other records added. The group is made up mainly of patients admitted to our psychopathic wards with definite psychoses, but a few are patients who reported to the neuropsychiatric clinic for nervous symptoms of varying severity.

For uniformity in the grouping and classification, we continue the same grouping and classification as used by Ebaugh and Dixon.

A. THE ORGANIC GROUP

The organic group is composed of parenchymatous neurosyphilis, in which the destruction of the central nervous system has proceeded beyond repair; of course, these patients showed definite mental deterioration. In the psychopathic wards, group A unfortunately predominates. Tryparsamide was used in a small percentage of these cases to check up on the clinical prognosis as well as to test tryparsamide as a therapeutic agent. Eleven previously committed patients of this type were treated.

B. ORGANIC REACTIONS WITH PSYCHOSES OF FUNCTIONAL COLORING

The group presenting organic reactions with psychoses of functional coloring consists of general paralytic patients in whom treatment may possibly arrest the pathologic process and restore the patient for periods of varying length. Clinically, this group includes the psychoses simulating the functional disturbances seen in manic excitement with expansive delusions; in depressions, and in other reaction types, in addition to the organic syndrome present in general paralysis. Approximately 20 per cent of the patients admitted came under this heading. The use of tryparsamide in the thirty-six cases of this type treated was of great interest and clinical import, as many of the patients had previously received arsphenamine without result. This group reacted favorably.

C. TRANSITORY PSYCHOSES WITHOUT SIGNS OF DETERIORATION

Patients showing transitory psychoses without signs of deterioration have general paralysis in which the mental symptoms are frequently transitory and are exhibited before any signs of deterioration develop. In this group occur delirious reactions and irritative phenomena (which are common enough in any paralytic patient), such as convulsive seizures, aphasic attacks and meningovascular and endarteritic upsets. Such patients are few, although a small number were admitted showing delirious reactions.

After tryparsamide had been made available, it was used in many cases of general paralysis admitted to the wards, when not contraindicated. The report includes only those cases which were not too deteriorated to warrant final commitment to the Philadelphia Hospital for Mental Diseases, where treatment was usually continued, but reports are not available at this time. Other drugs were not administered with or during the intervals of the trparsamide treatment, so that our results are due to those of tryparsamide alone. Our serologic results are not as good as those reported by other workers, and we feel that mercury or bismuth should be administered as an adjunct to the tryparsamide treatment. The dose of tryparsamide is 3 Gm. in 10 cc. of distilled water, given weekly for ten doses, followed by a six weeks' rest.

In all cases, before treatment was begun a careful eyeground examination was made. As many of our patients were in dilapidated mental conditions, perimetric studies were discontinued and we have relied mainly on subjective symptoms; patients and their families were instructed to report any visual symptoms, and in the event of any visual symptom, treatment was discontinued and the eyes were reexamined; if the eye symptom disappeared promptly, treatment was resumed. The symptoms usually complained of were blurring of distant vision and some haziness of close vision. Sparks and streaks of light flashing across the field of vision often associated with headache were frequently reported. Serious visual injury has not occurred in our series except in the last cases reported by Ebaugh.

In considering results from the use of a drug in the treatment of general paralysis, the nature of the disease must be borne in mind: its tendency to show remissions of varying length, its slight serologic changes in one direction or the other, and, lastly, the difficulty of classification and prognosis. We have all seen "early cases" in which there was rapid deterioration and death; we have known "deteriorated cases" in which there were remissions and a return to apparent normality without treatment. Interpreting clinical results in so capricious a disease, the possibility of commending or condemning a drug unjustly must be borne in mind. We simply give our results and personal observations.

Results of Treatment with Tryparsamide

Summary	Number	Percentage
Still on treatment	13	25
Living and well but not on treatment	12	22
Dead	4	6
No information	7	17
Committed permanently as insane	13	25
Custody of other physicians; other treatment instituted	3	5

The accompanying table summarizes the results obtained in the cases reported by Ebaugh and Dixon. The difficulty of following up a class of drifters and homeless people after discharge from the institution is enormous. The few who have been completely lost to our social service attests to its efficiency.

The serologic results are not obtained with the same amount of tryparsamide treatment as are expected with a commensurate amount of the arsphenamines. While serologic results are not as good as with the

5. Solomon, H. C.: Treatment of Neurosyphilis, J. A. M. A. **81**: 1742 (Nov. 24) 1923.
6. Lorenz, W. F.; Lovenhart, A. S.: Bleckwein, W. J., and Hodges, F. J.: Therapeutic Use of Tryparsamide in the Treatment of Syphilis, J. A. M. A **80**: 1497 (May 26) 1923.
7. Moore, J. E.: Robinson, H. M., and Keidel, Albert: Tryparsamide in the Treatment of Syphilis, J. A. M. A. **82**: 528 (Feb. 16) 1924.
8. Ebaugh, F. G., and Dickson, R. W.: The Use of Tryparsamide in the Treatment of General Paralysis, J. A. M. A. **83**: 803 (Sept. 13) 1924.

arsphenamines, the much greater improvement of the physical and the mental status of the patients is a far more desirable result. The minimal inconvenience due to the low toxicity of the drug is one of its most valuable assets, and this with the objective physical improvement to the patient assures his cooperation and that of his relatives. In the examination of the spinal fluid, the most notable thing is the rapid decrease in the cells and globulin, but the Wassermann and the colloidal gold tests are much more slowly affected. The gold curve usually breaks and becomes of the tabetic type before becoming negative.

SUMMARY AND CONCLUSIONS

The results that we have obtained in the treatment of general paralysis with tryparsamide have been encouraging, and are certainly greater than any that we have seen with the use of other arsenicals, mercury or bismuth. We hesitate to use the word "cure" in the consideration of general paralysis and speak only of improvement.

Of the fifty-two cases in the original series of three years' duration, we are in touch with twenty-two, and all of the patients can be said to be in fairly good mental and physical condition. The clinical results far surpass the serologic improvement, which takes place only after very prolonged treatment. It should be remembered that our cases have been treated only with tryparsamide, and that others have reported better serologic results when the use of this drug has been combined with mercury or bismuth or other arsenicals.

One of the best results from the use of tryparsamide is the great improvement in the physical state of the patient, who usually gains weight and appears to be in better general health. The tremor of the face, tongue and lips, and, as a result, the speech defect, is usually considerably bettered. Patients who have been treated with tryparsamide and later have to be institutionalized do not have such a marked tendency toward the formation of trophic sores as those who have not received the drug.

The bad effects that we have noted in our series of cases have been small; we have had two cases of jaundice, one of dermatitis and two of Herxheimer's reaction, and two patients have shown serious visual defects as the result of treatment. We realize that there is a danger as far as vision is concerned, but we feel that the danger has been overemphasized. Two cases of retinochoroiditis have been treated successfully in this series.

From our experience with tryparsamide, we feel justified in believing that the drug produces beneficial results in 40 per cent of the cases, and that as far as drugs are concerned it is by far the best one to use in the treatment of general paralysis.

Chestnut and Twentieth streets.

Clear Understanding of Aims Needed.—The ends of education can never be deduced from mere observation of facts. . . . We need a clear understanding of final aims before we have a right to approach the facts. The facts are our tools, with which we try to secure the desired effects, but we must determine beforehand what aims we want to reach. This leads us to the world of will and purpose, but in this world of purposive reality we cannot separate the question of education from that of human ends in general. We need, therefore, the inquiry of ethics as to the valuable aims in life, and the inquiry has to be a philosophical one. . . . We know what we ought to do, because we know what constitutes the value of our life.—Münsterberg: Psychology and the Teacher, p. 64.

Clinical Notes, Suggestions and New Instruments

ACUTE INTUSSUSCEPTION WITHOUT PAIN

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D. M., a boy, aged 3 months and 15 days, vomited his bottle feeding late in the afternoon of Nov. 2, 1926, and about half an hour later passed about 3 cc. of bright red uncoagulated blood by rectum without any accompanying feces. A normal stool was passed that morning and there had not been any diarrhea. The feeding was mixed: the breast every three hours, followed by a supplement of whole milk, water and dextrimaltose. The mother stated that she gave the baby 5 drops of castoria daily because of a tendency toward constipation.

The history showed a normal birth, and except for a severe cord hemorrhage about twenty minutes after birth there had not been illness of any kind. The baby had never vomited before.

The baby was well nourished and did not show signs of discomfort. The pulse was 120; the temperature by rectum, 98.8. The throat, neck and chest were normal. The abdomen was flaccid. A typical sausage-like tumor was palpated extending from the hepatic flexure to the left lower quadrant. The liver edge was easily palpable and distinct from the tumor. The child smiled and gurgled throughout the examination. The baby was immediately ordered to the hospital and, on the advice of Dr. R. C. Johnson, our gastro-enterologist, it was decided to give a barium enema under the fluoroscope to rule out other possible conditions. The column of barium stopped at the splenic flexure and showed the typical two-horned concave cap which under pressure moved backward to the hepatic flexure, where the contour was lost, and the sausage had disappeared. Immediate laparotomy under ether revealed a typical ileocecal intussusception terminating at the hepatic flexure. Reduction by backward milking was easily accomplished. The ileocecal region was red and edematous, but signs of necrosis were not present. An attempt to fix the reduced parts was not made. Recovery was uneventful.

A month later the mother reported the baby in perfect health. The unusual feature of this case was the entire absence of distress and shock.

3243 Oak Park Avenue.

TULAREMIA*

SAMUEL O. FREEDLANDER, M.D., AND MAURICE H. GROSSBERG, M.D.
CLEVELAND

The four cases reported here are the first to be reported from this vicinity. Two of the cases emphasize the fact that the patient may first present himself to the physician long after the acute febrile stage, complaining only of tender swellings along the course of the lymphatics or in the lymph glands. All the cases were verified by agglutination tests done at the Hygienic Laboratory, Washington, D. C.

CASE 1.—E. D., a white man, aged 40, employed as a market man, handled, among other things, wild rabbits, which he dressed himself. The patient complained of not feeling well, Dec. 7, 1925, and went to bed the next day. At this time he had fever, chills and sweats, headache, and severe pains in the back. There was pain in both axillae. Prostration was fairly marked. The temperature was 103 F.; the pulse, 84. The throat was moderately injected, and the lymph nodes in both axillae were enlarged and tender. On the index finger of each hand there were fissures that had been present for some time, but at this time did not show acute inflammatory reaction. Two days later, a red indurated streak developed on the dorsum of the left forearm. At the same time, an area of redness and tenderness was noted about the fissure on the left index finger, and to a less degree about the fissure on the right index finger. The area of redness on the left finger

* From the University Surgical Service, Cleveland City Hospital.

was incised, but pus was not obtained. Hot soaks were ordered for the fingers, and the left elbow was splinted in extension and hot compresses were applied. The lesions on the fingers sloughed, leaving ragged shallow ulcers with a thin purulent discharge, which responded very slowly to the treatment. The patient's sweats, back pain and rigors continued for about one week. The temperature range was from normal to 102 F., the patient having fever for eighteen days. A leukocyte count taken during the febrile period was 16,000 per cubic millimeter. The patient's convalescence was slow, and after ten weeks the enlarged lymph node in the left axilla was still palpable. A sample of blood taken in the third week of the disease was sent to the Hygienic Laboratory, where the serum was found to agglutinate *Bacterium tularense* in a dilution of 1:600.

CASE 2.—S. H., a colored man, aged 32, worked in a market skinning rabbits for two weeks prior to Dec. 15, 1925. About this date, he noticed a sore on the middle finger of his right hand. At the same time, he felt a tender swelling in the right axilla. For three weeks he was confined to bed with fever, chills and delirium. He came into the City Hospital dispensary, Jan. 9, 1926. There was an indolent granulating lesion on the middle finger of his right hand, a large tender fluctuating gland in the right axilla, and an enlarged epitrochlear gland. The temperature was normal. Blood sent to Washington agglutinated *Bacterium tularense* in dilutions of 1:10 to 1:320. Incision of the axillary gland revealed thick, creamy pus which did not give a growth on ordinary mediums. January 23, he was discharged with the wounds healed.

CASE 3.—F. C., a white man, aged 37, a butcher, was admitted to the City Hospital, Jan. 9, 1926, with a sore finger and a sore lump on his right arm and in the right axilla. Six weeks prior to admission, he noticed an abrasion on the middle finger of the right hand from which he picked out a small piece of bone. As he had been dressing both poultry and rabbits, he did not know the source of the bone. The finger continued sore, and in a few days he noticed a red streak along the dorsum of his forearm. On the fifth day he expressed some white pus from the lesion on his finger. The red streak disappeared about the eighth day. Soon after, he first noticed a tender lump on the dorsum of the right wrist, which was slightly tender. A few days later, another lump appeared higher on the forearm and then a tender lump was noticed in the axilla. Other lumps subsequently appeared on the forearm. During all this time, while the patient had not felt entirely well, he was never forced to go to bed. The temperature on admission was 38 C. On the dorsum of the right hand, at the junction of the bases of the first and second metacarpal bones, there was a swelling about 1.75 cm. in diameter; it was slightly reddened and a little tender to pressure. There was another similar "tumor mass" on a line straight up the arm on the lateral side at the junction of the lower and middle thirds of the radius. A third mass was found about 2 cm. below the bend of the elbow, and also on the radial sides of the forearm along the course of a rather prominent vein. A fourth and larger mass (about 2.5 to 3 cm.) in size, and one which was red and tender to pressure was found in the right axilla. A few small lymph nodes were palpable in the right axilla and more, larger ones (from 1 to 1.5 cm.) were found in the left axilla. There was a very small mass (about 2 to 3 mm. in diameter) found in the left cubital fossa. The white blood cells numbered 16,000. The differential count was normal. Blood sent to Washington agglutinated *Bacterium tularense* in dilutions of from 1:10 to 1:1,280. Incision of the axillary abscess revealed thick, creamy pus, which did not give a growth on ordinary mediums. One of the nodules that was excised showed chronic inflammation with focal areas of necrosis. The subsequent course was uneventful, and the patient was discharged, February 5.

CASE 4 (reported through the kindness of Dr. H. S. Applebaum).—G. T., a man, aged 40, employed as a butcher, had for three months previous to the present illness been dressing rabbits. In the latter part of November, 1925, he noticed a slight laceration on the left middle finger. About one week later, he got what was called influenza and was confined to bed for three weeks with a temperature ranging from 99 to 103 F. Slight elevation of the temperature persisted for two more weeks. The ulcer on his finger healed very slowly. There was enlargement and tenderness of the epitrochlear and axillary glands. Blood sent to Washington agglutinated *Bacterium tularense*. The Widal reaction was negative.

The axillary and epitrochlear glands went on to fluctuation and were incised, March 4, 1926. Thin white pus was obtained. Convalescence was uneventful.

SALIVARY TUMOR BLOCKING PHARYNGEAL OPENING OF LEFT EUSTACHIAN TUBE

CHARLES J. ADAMS, M.D., KOKOMO, IND.

I am reporting this case because the microscopic changes and the location of the tumor are most unusual. Undoubtedly this was a congenital misplacement of tissue.

A woman, aged 19, single, was troubled with occasional attacks of grand mal, tubotympanic catarrah and deafness. In making a routine examination of the nose and throat, I discovered a small tumor mass in the pharyngeal opening of the left eustachian tube. While the tumor mass was freely movable, it completely blocked the tube opening, acting like a ball valve. I discovered that it was attached well up in the tube on the posterior lip by a broad base. With the aid of a nasopharyngoscope, I was easily able to remove the tumor with a snare.

Microscopic examination revealed that the sections consisted chiefly of lobules of salivary gland tissue, separated by wide bands of fibrous tissue and having a narrow layer of lymphoid tissue without lymph follicles in the submucosa.

Evidence of a malignant condition was absent.

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Special Article

CANCER STATISTICS AS THEY APPEAR TO A PATHOLOGIST

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CHICAGO

(Concluded from page 403)

IS CANCER A GROWING MENACE?

All statistics agree in indicating that the proportion of deaths recorded in civilized communities as the result of cancer has been increasing for several years, but the exact significance of this fact is not yet agreed on. It is perfectly evident that the average age of the people of these communities has also been increasing during the same period, partly from lowered birth rate, partly from reduction in the mortality from tuberculosis, typhoid, diphtheria and numerous other infectious diseases that attack the young, especially the infantile diseases. Obviously, every person saved from death in youth becomes a potential victim of cancer in later years, and consequently every improvement in public health leads to an increased cancer mortality. Should a means be found to cure or prevent effectively the last remaining large group of infectious diseases, the acute respiratory infections, there would result a marked augmentation of the cancer mortality in the following years. A high crude cancer death rate is evidence of a good state of public health, being high in direct proportion to the degree of control of preventable diseases. Therefore, we find the high cancer rates in Switzerland, Denmark, Holland, and other such well governed, well educated communities; the low rates are in Serbia, Jamaica, and other such countries occupied by less advanced populations.

Likewise, every forward step in diagnosis, hospitalization and medical observation adds to the number of

recorded cases of cancer. The roentgen rays have undoubtedly added far more cancer diagnoses to the vital statistics than they have kept off the death records by their therapeutic achievements. The motor car, by shortening the distances between patient and physician, unquestionably increases greatly the number of recognized cases of cancer. And, as seen from the figures cited in earlier paragraphs, the growing frequency of postmortem examinations is adding many cases of cancer to the records that otherwise would have been unrecognized.

Another important factor in the increasing cancer rate is the improved recording of vital statistics. In many countries the older rates are based on death records, a large proportion of which were filed by nonmedical persons, in some places the parish priest, in others the undertaker, often by friends and relatives. Laymen rarely report deaths as due to cancer, and in some communities a large proportion of the death certificates have been filed by laymen. The great influence of this sort of certification on cancer statistics has been well discussed by Willcox,[11] whose careful analysis of cancer statistics is one of the best in the literature.

A large error in earlier statistics also lay in the recording of deaths of old people as resulting from "senility," "old age" and "causes unknown." The refusal of authorities during recent years to accept this sort of diagnosis has undoubtedly been responsible for transferring many cases to the list of deaths from cancer. The trouble is that there is no possible way to learn how many such transferred cases there are in any set of vital statistics. Recently Schereschewsky[12] has published a careful analysis of the cancer mortality in the ten original registration states for the period 1900 to 1920, with the object of determining the trend during this period. He found that during this period of twenty-one years, the death rate in persons over 40 years of age reported as from "ill defined" causes fell from 108 to 5, and the mortality rate from "senility" fell from 185 to 34.1. The drop in the combined death rate from these causes was from 293 in 1900 to 39.1 in 1920. Schereschewsky attempts to make due allowance for the influence on the cancer rate of this improvement in the recording of deaths, but, of course, has no way of finding out how many of the 13,491 deaths that were thus redistributed were assigned to cancer and how many to other causes. Lacking any definite information, he is obliged to guess at what the transfer to cancer was, and so makes the assumption that cancer formed 13.7 per cent of this group in persons between 40 and 59 years of age, and 10.6 per cent in persons over 60. He takes these two figures because these were the rates for cancer in the cases other than those recorded as from senility and causes unknown in those age groups, making the assumption that the proportion of cancer cases was just the same in the groups definitely recorded and in the large group of cases indefinitely recorded as "senility and causes unknown."

But is this assumption warranted? Would it not be much more justifiable to assume that a much larger proportion of cancer lies hidden under the caption "senility and causes unknown" than is disclosed in the group of more carefully recorded causes of death? Several arguments can be advanced for this point of view. First, that in the aged, internal cancer is one of the conditions that is particularly likely to offer diagnostic difficulties—much more so than nephritis, cerebral hemorrhage and heart disease, the other chief causes of death in the old—and therefore especially likely to be set down in the "senility and causes unknown." Again, the well recognized tendency to evade the diagnosis of cancer whenever possible, which certainly accounts for some, possibly for many of these ambiguous diagnoses. The physicians who would use these unintelligent diagnoses would be the ones with least respect for the sanctity of records and the most respect for the prejudices of their patients. Furthermore, the very fact that in the statistics analyzed by Schereschewsky the cancer death rate in the cases in the age group between 40 and 59 was 13.7 per cent of all deaths except those reported as "senility and causes unknown," whereas in those above 60 the cancer rate was only 10.6 per cent, is good evidence that a large number of cancer cases in the aged had been hidden in the "senility and causes unknown" classification, for the incidence of cancer increases progressively with age, when corrected for the number of persons living at each age period.[13] Therefore, if there were 13.7 per cent of cancers among the deaths recorded in the 40 to 50 period, there were undoubtedly much more than 10.6 per cent of cancer deaths among those dying after 60 years of age, and hence this correction is far too low. We might be justified in making the assumption that there was twice as large a cancer rate concealed in "senility and causes unknown" as appears in the more accurately reported group; this would add to Schereschewsky's figures 1,461 more cases, and would change the figure of 12,950 cancer deaths in this age period to 14,411. But who can tell whether this assumption is any more nearly correct than the assumption made by Schereschewsky? If it is correct, it destroys much of the evidence on which is based the conclusion that there is an increase in the cancer rate not accounted for by the changes in such factors as age distribution, and therefore assumed to represent a real increase in cancer mortality in persons over 40 years of age. But this is, of course, merely unwarranted gratuitous juggling of figures.

In addition to the foregoing questionable assumption, Schereschewsky has also made what I believe to be a serious error in disregarding "the extent to which general improvement in diagnostic skill may have contributed to such an increase." The reason he gives for so doing is that "we are dealing, not with improvement in the early diagnosis of cancer, when there is still hope of arresting the disease, but with the diagnosis of cancer in its terminal stages." In other words, Schereschewsky holds that no more cases of late cancer were being recognized in 1920 than in 1900, despite the development during that period of the roentgen ray and its accessories as a diagnostic measure, the vastly increased use of exploratory operations, the springing up of diagnostic laboratories in every city and many of the villages in the ten registration states, the marvelous increase in transportation by automobiles, the great improvement in medical education in the United States, the vast augmentation of hospital beds and diagnostic clinics, and the great increase in the number

11. Willcox, W. F.: J. Cancer Research **2**: 267 (July) 1917.
12. Schereschewsky, J. W.: Cancer Mortality in Ten Original Registration States, J. A. M. A. **85**: 1175 (Oct. 17) 1925.
13. Dublin, L. I.: J. Cancer Research **4**: 235 (July) 1919.

of postmortem examinations. That is certainly not the conclusion that I would reach from what I have seen during that same period, and Green,[14] who has recently analyzed the cancer deaths during 1910-1920 in the United States death registration area, finds that the cancer death rate varies directly with the number of physicians per hundred thousand of population. He concludes that in places where the rates are highest, better medical attention is available, hospitalization is common, and postmortem examinations are frequently made; thus, a larger portion of the total number of deaths due to cancer are properly diagnosed and reported. In Copenhagen, with perhaps as well trained physicians and accurate diagnostic work as will be found anywhere, the frequency of cancer in the age group from 55 to 64 years shows no change during the twenty years from 1904 to 1923.[15] Even cancer of the stomach does not show an appreciable change in frequency as a cause of death during this period in Copenhagen.

Furthermore, even in the ages past 40, the improvements in diagnosis, hospital care and therapeutics are undoubtedly saving some lives from diseases other than cancer that would have been lost under the conditions of from twenty to thirty years ago, and the prolongation of life by these means is undoubtedly even more marked. Many of these persons are saved from other deaths to die of cancer. For example, the introduction of insulin will undoubtedly permit not a few persons to die of cancer rather than diabetic coma; the earlier recognition and better management of hypertension also undoubtedly increases the cancer death rate in persons past forty.

If we take the statistical studies that have been published during the last decade on this topic of cancer increase, there seems to be a certain line that can be drawn, depending on what sort of case is being considered. Those who, like Hoffmann and Schereschewsky, take the entire mass of cancer statistics, are impressed with the vast increase in the crude rate, and consider that the subtractions they feel required to make on account of the various factors mentioned previously cannot account for all the increase. On the other hand, those who select for consideration only the external cancers, which are unlikely to be incorrectly diagnosed or recorded, usually fail to find any tendency for these types of cancer to increase. For example, Willcox finds that the corrected rates for accessible and inaccessible cancer in Frankfort for the period from 1860 to 1913 show that the increase was limited to inaccessible cancer, the rate for accessible cancers remaining stationary, and therefore the increase was probably due to improved diagnosis. An analysis of the cancer deaths in Stuttgart from 1873 to 1902 by Weinberg and Gastpar[16] indicated an increase in cancer of the stomach and other internal organs, while there was a decrease in cancer of the breast and uterus. They also remark that "the mortality of neoplasms of the uterus has fallen in Berlin quite as much in half the time [fifteen years] as in Stuttgart; in Hamburg it has increased little or not at all, and the same is probably true for Frankfort-on-the-Main."

Renaud[17] likewise reports that in recent years the number of visible cancers is stationary or declining, except for mammary cancer in Switzerland. Peller[18] has studied the statistics for several countries, and finds that in men over 35 years of age, there is little if any increase in cancer of the skin; for example, in England and Wales the rate for 1909 was 43.5, in 1868 it was 45.7. In the same countries cancer of the female generative organs and breast shows little change in frequency, the rate being 117 in 1888, 127 in 1909 and 121 in 1919.

On the other hand, Schereschewsky found in the figures of the ten registration states a higher percentage increase in cancer of the buccal cavity, breast and uterus than for cancer of the stomach and liver. This is exactly opposite to the figures in almost every other set of cancer statistics that have been published, and raises questions as to the character of the data of the ten registration states on which the studies were based. Furthermore, Dublin reports that in the enormous number of people coming under the industrial department of the Metropolitan Life Insurance Company, a large proportion of whom were in the ten registration states, the records of cancer "show no decisive upward or downward tendency for all age classes combined" in the period from 1911 to 1916 inclusive.

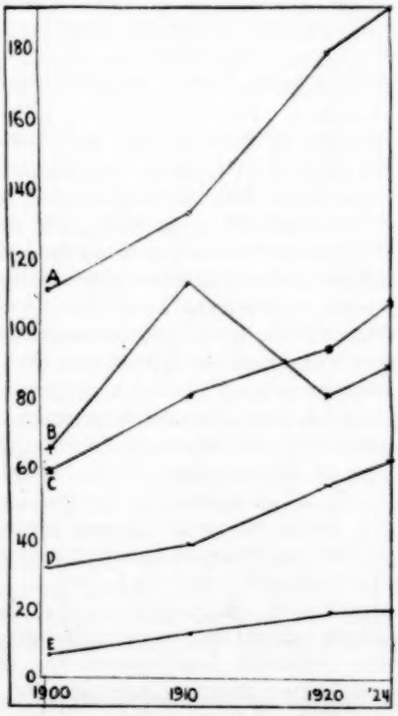
Many more items of evidence one way or the other might be cited, but enough has been given to indicate the contradictory conclusions that have been reached from the study of vital statistics of cancer, and perhaps to arouse in the reader some of the doubts that exist in my mind. Perhaps my attitude is in large part due to the pictures that are in my mind as I read the tables of cancer statistics. I see more than the columns of figures; I see their origin. I see some old grandfather lying in bed in a working man's home, complaining, as he has complained off and on for years, that his food doesn't agree with him any more, that his rheumatism is worse than ever, and that he doesn't feel like getting up in the morning. And after he has stayed in bed complaining a few days, the daughter-in-law says that grandpa has been failing lately, and perhaps they had better get a doctor; but probably it's just old age and a doctor couldn't do any good. And then one morning they find the old man evidently much worse, coughing and complaining of a pain in the chest. So the doctor over the neighboring drug store is called in, finds the old man's lungs full of râles over the bases, the bronchi gurgling with mucus, and the pulse irregular and feeble. He shakes his head, says the old man has heart trouble and pneumonia, and things do not look very good, but perhaps some of this anodyne expectorant mixture will ease the cough, and better keep his chest warm. So when two or three days later the old man cannot longer keep his bronchi open, and strangles slowly out of life, a death certificate is unhesitatingly prepared which gives as the cause of death pneumonia, with myocarditis as a contributing cause. And as a pathologist I puzzle about what lay back of it all, for sometimes such old men are taken to the County Hospital to breathe their last, and if they reach the necropsy table unexpected things may be found, such as a large ulcerating cancer of the stomach that did not produce obstruction symptoms, or a diffuse bronchogenic carcinoma of the lung, or a prostatic carcinoma with bone involvement and profound anemia. Therefore, I wonder what all these columns of figures

14. Green, H. W.: Am. J. Pub. Health **16**: 605 (June) 1926.
15. Heiberg, P.: Has the Mortality from Cancer Changed in Copenhagen? J. Hyg. **24**: 291, 1925.
16. Weinberg and Gastpar: Ztschr. f. Krebsforsch. **2**: 195, 1904.
17. Renaud, A.: Rev. méd. de la Suisse Rom. **43**: 433 (July) 1923.
18. Peller, S.: Ztschr. f. Krebsforsch. **22**: 316 (June) 1925.

mean that they should be taken so seriously—for I know the way they had their birth, in laboring men's homes, in lodging houses, in hall bedrooms, in undertaker's "parlors," as well as in the homes of the relatively few who have good and adequate medical service for their old people, or in hospitals and institutions of all sorts and qualities.

And after thinking about what the figures may mean, and what they really mean, and what others think they mean, I match up the impressions so obtained with those other impressions obtained from thirty years' observation of cancer in living people and in dead bodies, under the microscope and in animals of many species, and I find myself unable to accept anything about cancer as finally established by statistics.

If I were to take of the statistics the only ones that seem to me, as a pathologist, likely to be reasonably accurate, namely, the data on external or accessible cancers, corrected for age and sex, I should have to conclude that in all probability cancer is increasing to just about the extent that people are kept from dying of something else. It seems to me that the improvements in diagnosis, the increased age level, and the many new means of prolonging life even in people who have reached cancer age (a factor that is, by the way, largely unconsidered), are fully sufficient to account for all the observed changes. And in support of this is the fact, also too little emphasized, that the increase in the cancer rate is just about the same as the increase of the other three common causes of death in those who have passed the prime of life; namely, cerebral hemorrhage, nephritis and heart disease. Also diabetes, which is chiefly an old age disease, shows the same trend: Witness the figures on the percentage change in death rates from the vital statistics of Chicago (table 4). The rising tendencies are shown more graphically in the accompanying chart.



Vital statistics of Chicago: *A*, heart disease; *B*, nephritis; *C*, cancer; *D*, cerebral hemorrhage; *E*, diabetes.

An analysis of the same records to bring out the rate of change of the death rate according to age groups, given in table 5, for which I am indebted to Dr. I. S. Falk, shows that for heart disease, nephritis, cancer and cerebral hemorrhage the death rates have been increasing about as rapidly for one as for another in the periods 1910 to 1920, 1920 to 1925, and 1910 to 1925.

Evidently, all the diseases of old age are increasing because old age is becoming a more common condition, so why the particular excitement about cancer?

Therefore, as far as the statistical evidence goes, it seems perhaps justifiable to conclude that there is no real increase, except to the extent that all diseases of advanced life are increasing because a larger proportion of the population reaches advanced life. But I have too little respect for the statistics to come to that conclusion, any more than I am willing to accept as established the conclusion that there is really a growing menace of cancer. I am not by any means sure that changes of habits and occupations may not be having some influence on the incidence of cancer. For example, a smaller proportion of the population are now engaged in outdoor occupations, which theoretically favor the development of cancer of the skin of the face. Chimney sweeps' cancer may be decreasing or vanishing with modern house construction and heating in the countries where it once occurred. Bladder cancer may be increased as an industrial disease through the development of dye factories.[19] Perhaps changes of diet or culinary technic may influence the occurrence of cancer of the stomach—but in which direction there is no reliable evidence. There seems to be little doubt that primary cancer of the lung is now a more common disease in Europe and America than it was even ten or fifteen years ago.[20] If this is a sequel of influenza, as some believe, the increase should be transitory; but if it is the result of irritating chemicals from industrial processes, or the dust from tarred roads, which are among the possible exciting causes, the increase in this form of cancer may become permanent and significant. So perhaps there are changes in the incidence of cancer, independent of the increased age level of the population. My object is not to deny the existence of an increased incidence or to establish the existence of a decreased frequency, but merely to indicate how unconvincing the evidence appears to one whose daily observation impresses him with the inaccuracy of the recorded statistical data.

IS CANCER A DISEASE OF CIVILIZATION?

If the statistics in Europe and America are unreliable, what is the state of the evidence on which is based an affirmative conclusion to this question? And yet this affirmation has appeared and does appear repeatedly in medical literature. For the most part it is not even supported by statistics, but rests merely on the statement of one or a few physicians practicing in remote countries that they have seen few cases of cancer; or occasionally a medical traveler has said that he found few or no cases of cancer among the members of some primitive tribe; but for primitive peoples vital statistics do not exist.

It must be agreed that the evidence is practically unanimous that fewer cases of cancer are seen among primitive people than in Europe, but what does that mean? It means that fewer cases of cancer are seen among primitive people than in Europe, and that is all it does mean. It does not indicate that these people are intrinsically less susceptible than Europeans; in fact, it does not even prove that they are not more susceptible to cancer than Europeans. Any conclusions are unwarranted on the basis of the evidence presented, because this evidence lacks certain necessary information. The great difficulty is that evidence is lack-

19. Schwerin, P.: Zentralbl. f. Gewerbe-Hyg. **8**: 64 (April) 1920. Nassauer: Ztschr. f. ang. Chem. **32**: 333, 1919. Hamilton, Alice: J. Indust. Hyg. **3**: 16 (May) 1921. Posner, C.: Ztschr. f. Urol. **18**: 418, 1924.

20. Staehalin, R.: Klin. Wchnschr. **4**: 1853 (Sept. 24) 1925. Berblinger, W.: Ibid. **4**: 913 (May) 1925. Kikuth, Virchows Arch. f. path. Anat. **255**: 107, 1925. Fried, B. M.: Primary Carcinoma of the Lungs, Arch. Int. Med. **35**: 1 (Jan.) 1925.

ing as to the age of the population under consideration. We know that, except under conditions of civilization, old age is an untoward and relatively unusual occurrence, and hence there are relatively few who reach cancer age in uncivilized or backward countries. The expectation of life for males in India is said to be 26.6 years as against 54 years in the United States, so what is the chance of a native Hindu reaching cancer age as compared to that of an American? According to Rogers, the census return for Bengal revealed 17.86 per cent of the people to be over 40 years of age, as against 27.53 per cent in England. Again, among primitive people it is especially the old persons that the foreign physician most particularly does not see. They stay back in the hills, dreading the foreigner and his innovations, relying on the native medicine man. Only the young people are likely to visit the missionary doctor or other foreign physician.

TABLE 4.—*Percentage Change in Death Rates*

	1900	1910	1920	1924	% Increase
Nephritis	65.8	113.8	81.3	110.0	68
Heart disease	111.4	133.9	179.7	191.1	71.6
Cerebral hemorrhage	31.4	38.1	54.9	62.3	98
Diabetes	6.4	13.9	18.8	18.9	195
Cancer	58.0	82.1	94.3	108.1	86

TABLE 5.—*Chicago Data: Causes of Death According to Age Group*

Age Group	40-49 Yrs. %	50-59 Yrs. %	60-69 Yrs. %	70-79 Yrs. %	80 and Over %	All Ages %
All Heart Disease:						
Ratio 1920/1910	97	116	118	146	192	135
1925/1910	128	145	146	147	177	157
1925/1920	132	125	123	100+	92	117
All Nephritis:						
Ratio 1920/1910	43	56	70	86	115	71
1925/1910	60	68	95	103	124	91
1925/1920	138	121	135	119	107	127
All Cancer:						
Ratio 1920/1910	97	95+	99+	130	123	115
1925/1910	93	96+	130	160	157	131
1925/1920	96	101	131	123	128	114
All Cerebral Hemorrhage:						
Ratio 1920/1910	127	119	126	138	123	144
1925/1910	119	152	168	154	147	177
1925/1920	93	128	133	112	120	123

Looking over the literature on malignant disease among the uncivilized races or among peoples of backward culture, the pathologist is struck with the fact that so large a proportion of the reported cases are sarcoma; in fact, sarcoma is often said to be more common than carcinoma in such people. This fact at once indicates that the physician making the report is seeing chiefly young people, for until about 30 years of age, sarcoma is more common than carcinoma, according to the best evidence we have for our own people.[21] For example, in 792 cases of malignant tumor admitted to the Mayo Hospital in India,[22] 400 were carcinoma, and 334 were diagnosed as sarcoma; of 226 tumors removed at operation and examined microscopically, eighty-seven were carcinoma and 139 were sarcomas. A significant fact is that the sarcoma rate in this hospital population is just about the same as in England, while the average age of the carcinoma patients was 10 years younger than in English statistics, both of which conditions indicate that a group of relatively young patients is being seen. Other statistics also bring out the youth of even carcinoma patients seen in the orient and tropics.[23] Of 470 patients operated on in the Canton Hospital, 290 had carcinoma and 180, sarcoma, the average age of those with carcinoma being only 44 years.[24]

Of course, in undeveloped countries the chance of internal cancers being recognized is small, and of the cancers described in such places most are of accessible parts of the body. Thus, of 1,589 cases of cancer reported from India and analyzed by the Imperial Cancer Research Fund, 1,513 involved the external surface of the body and only seventy-six the internal organs.

Among the best figures that we have on the occurrence of malignant disease among the natives of a medically backward community are those furnished by Sir Leonard Rogers,[25] since they are based on his twenty years' experience as a pathologist in Calcutta. This experience includes 1,600 necropsies and the microscopic examination of 1,190 tumors, these being compared with 1,000 necropsies and 1,000 microscopic examinations of tumors at St. Mary's Hospital in London. The figures show that the rate of malignant tumors in the Calcutta necropsies was only one third as high as in London, but when the age of the patients was taken into account it was found that in the subjects over 40, cancer is quite as frequent in Bengal. Rogers says that his observations "lend no support to Hoffman's contention that malignant disease is eight times as frequent in civilized as in uncivilized races." Among the 1,190 tumors examined microscopically, the percentage of malignant tumors of the total number of tumors was 57.9 in Calcutta, as compared to 56.5 in London; but sarcoma was much more abundant in Calcutta and carcinoma in London, largely because of the age of the population, for carcinomas seem to be relatively as frequent in Bengal in the population over 40 years of age. These hospital statistics show a higher incidence of carcinoma of the skin, penis, uterus, liver and gallbladder in Calcutta. As this fact is in accordance with other evidence that these tissues are particularly subject to chronic irritation in Bengal, presumably the relatively low figures for cancer of the tongue, esophagus, stomach, intestine and breast depend on less irritation of these tissues. While these statistics are of limited value because they represent only a hospital population, they justify the summary of Rogers: "Where the exciting cause is present, there will cancer result in primitive tropical people of the cancerous age at least as readily, if not more so, than in the civilized races of temperate climate."

From the standpoint of cancer pathology, reasons can be advanced why cancer might well be less abundant among aborigines than among civilized people, irrespective of the influence of age; and, on the other hand, there are reasons for expecting that there should be no difference. One thing is certain: aborigines are susceptible to cancer, irrespective of admixture or contact with foreigners. Cancer is a universal disease, apparently sparing none of the vertebrates, and similar diseases are described in other multicellular forms of life. Every known kind of malignant neoplasm has been described in members of the black, the brown, and the yellow races [26] and apparently these races do not exhibit

21. Weller, C. V.: Age Incidence in Sarcoma, Arch. Int. Med. **15**: 518 (April) 1915. Schamoni: Ztschr. f. Krebsforsch. **22**: 24, 1924.
22. Sutherland: Arch. Middlesex Hosp. **3**: 84, 1904.
23. Bercovitz, Nathaniel: J. Cancer Research **4**: 229 (July) 1919.
24. Thomson, J. O.: Ann. Surg. **73**: 217 (Feb.) 1921.
25. Rogers, Leonard: Glasgow M. J. **103**: 95 (Feb.) 1925.
26. Peiper: Ztschr. f. Krebsforsch. **12**: 290, 1912.

any sort of tumors not seen in Europeans. This is quite what is to be expected, in view of the fact that the lower mammals exhibit the same sorts of tumors as are seen in man. In mice, I have seen nearly every sort of tumor that I have ever seen in human material, including some of the rarest ones. Furthermore, the primitive people are not at all insusceptible to cancer when proper conditions exist for stimulating its development; witness the frequent development of "kangri cancer" in the abdominal skin of the natives of Kashmir as the result of overheating the skin by charcoal stoves, the cancer of the mouth in the chewers of the betel nut in the Asiatic countries and islands of the Pacific, and the bilharzia cancer of the bladder in Egyptians.[27] In view of these facts, the supposed increase in cancer among the primitive people when they are in contact with modern civilization, as in the American negroes, may well be only a matter of civilization revealing the cancers, not causing them. It will be found that in places where negroes and white people have the same sort of medical attention, the supposed discrepancy in the frequency of cancer among them becomes greatly reduced.

Only a relatively short time ago cancer was supposed to be uncommon in the Japanese, even as it is now said to be in China. But when Japan developed an educated medical profession to recognize and report diseases, it was found that cancer was about as common there as in Europe, and presumably it always had been,[28] unless one is prepared to accept the idea that Western education has caused a sudden manifold increase of cancer in the people of an old established civilization. It is to be expected that a similar story will be repeated for China with the new educational movement now going on in the great empire. An experience in the Peking Union Medical School is enlightening in this respect. A much quoted statement has long been current that although the incidence of syphilis is high in China, it attacks the nervous system relatively infrequently. But when a modern clinic was established in Peking, and clinical and laboratory studies were made of the clientele, it was found that there was not any dearth of neurosyphilis.[29]

Again, on the basis of the statements of occasional travelers and physicians, cancer has been commonly reported as rare among the Eskimos; but when a systematic inquiry was conducted in Greenland by the Danish Medical Association, it was found that cancer is quite as common as in Europe if proper correction is made for age.[30]

On the other hand, it is biologically reasonable to assume that there really are racial differences in cancer susceptibility, just as we find a marked difference in the susceptibility of different animal species. These differences may concern the constitutional susceptibility to cancer as a disease, or the susceptibility of different organs to cancer, just as we find the mammary glands of dogs and mice highly susceptible to cancer, while in the cow this organ is immune. For example, it seems probable that negroes are more prone to develop fibrous tissue overgrowths, especially keloids and uterine fibroids, than most groups of white people, and there is very good evidence that the negro skin is relatively unlikely to develop cancer, perhaps because of the protection against light afforded by the melanin. It is also quite within reason to expect to find that certain customs will introduce an amount of stimulation leading to cancer formation in certain tissues, as in the cases of kangri cancer and betel nut cancer mentioned previously. We have too little necropsy evidence to determine whether cancer of the stomach is as rare in the tropics and the Asiatics as it is supposed to be, for among the Japanese, as with us, it ranks high among the cancers. Presumably, if gastric cancer depends in any way on the character or condition of the food that enters the stomach, it should vary greatly according to the dietetic habits and culinary technic of the various countries. On the other hand, the frequency of gastric cancer in man, and its striking rarity in all other species of animals,[31] may depend on constitutional qualities rather than on the nature of the diet; at least, efforts to produce cancer of the stomach in dogs by special dietary conditions in experiments carried on in this laboratory for many years have so far been without result. So, too, the relative infrequency of cancer of the breast in Japanese women, which seems too marked to depend on statistical errors, may depend either on the amount of stimulation to cancer formation, or on the character of the Japanese mammary gland tissue itself.[32]

According to several observers primary carcinoma of the liver, a rare disease among white people, is much less infrequent among dark skinned people,[33] at least in South Africa and Java, but whether that is because of a particular susceptibility of the race or because of the frequency of chronic inflammation from schistosomiasis or other causes we do not know. In my own experience, which includes about twenty necropsies in cases of primary cancer of the liver, and numerous others that I have seen, there was not an undue proportion in negroes, who constitute a considerable part of my material; which evidence, as far as it goes, supports the view that the frequency of cancer of the liver in blacks depends on local rather than constitutional conditions.

In view of the results of experimental studies by Maud Slye and others [10] on the influence of heredity on the occurrence of cancer, variations in susceptibility may be expected to occur among different races and tribes of men, just as they unquestionably are exhibited between different species of animals. Especially with primitive people, there is relatively close breeding as compared with the promiscuous matings in civilized lands. Hence, it is to be expected that certain tribes or races may have developed cancer-resistant or cancer-susceptible strains, which would show a distinct difference from one another if we could have them under observation long enough and closely enough to learn just what the cancer incidence really is. Unfortunately, at the present time such information is completely lacking; but it would seem to be quite possible that some physician might find himself in a position to study this

27. Gobel: Deutsche med. Wchnschr. **48**: 1541, 1922.
28. Suzuki: Kyoto Igaku Zasshi **15**: 51, 1919. Harada, T.: Gann **15**: 24 (Aug.) 1921.
29. Lennox, W. G.: Neurosyphilis Among Chinese, Arch. Neurol. & Psychiat. **9**: 26 (Jan.) 1923.
30. Fibiger, J.: Ztschr. f. Krebsforsch. **20**: 148 (June) 1923.
31. Slye, Maud; Holmes, H. F., and Wells, H. G.: J. Cancer Research **2**: 401 (July) 1917.
32. Prof. M. Nagayo, editor of the Japanese Journal of Cancer Research, "Gann," has expressed to me much doubt as to the supposed infrequency of cancer of the breast in Japanese women. He calls attention to its leading place in the statistics of the surgical clinics of Japan, as shown, for example, in the reports of Kondo's clinic by Iizuka (Gann **10**, 1916); and from Sato's clinic by T. Abe (ibid.).
33. Pirie, J. H. H.: M. J. S. Africa **17**: 87, 1921. De Langen: Nederl. Tijdschr. v. Geneesk. **2**: 24, 1921. Macvicar, N.: South African M. Rec. **23**: 315 (July 25) 1925.

problem under favorable conditions in some isolated communities. Such an undertaking is greatly needed. It is quite possible that although apparently all races of man are susceptible to cancer, yet cancer is more frequent under conditions of modern civilization, not only because civilization offers a better opportunity to reach cancer age, but also because it widens the range of hereditary background, and more often introduces cancer-susceptible strains than will be the case in primitive people who live in compact groups with a minimum of intermixture of other groups; but this is merely speculation. At present, it seems to me, the most that we can say is that although all races and groups of human beings are susceptible to cancer, it is probable that conditions of life and hereditary constitutional factors modify the frequency with which cancer appears in different races and different nationalities or the frequency with which it attacks different organs or tissues. However, the evidence now available is too fragmentary and too poorly controlled in respect to figures on the age of the population, and too defective in thorough clinical and necropsy study, to permit of any positive statements as to the relative susceptibility to cancer of the peoples of civilized and uncivilized communities, or in the black, white, brown, red and yellow races of mankind.

University of Chicago.

New and Nonofficial Remedies

EPHEDRINE: II

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following further report, on Ephedrine. The Council also recommended publication of the report of the A. M. A. Chemical Laboratory, Ephedrine Hydrochloride.

W. A. PUCKNER, Secretary.

The Council published a preliminary report on the experimental status of therapy with the alkaloid ephedrine (THE JOURNAL, Sept. 11, 1926, p. 849) and postponed the acceptance of ephedrine or its salts to await confirmatory clinical evidence and the availability of acceptable brands of the drug.

The further reports on the use of ephedrine which have been published seem to warrant the acceptance of the drug for New and Nonofficial Remedies and the recognition of acceptable brands if the firms which market them will agree to be conservative in their claims. The drug is apparently not dangerous under the conditions of its practical use; but the therapeutic applications are still somewhat problematic, and for that reason care must be used to avoid unwarranted and extravagant claims.

The A. M. A. Chemical Laboratory has submitted a report of the work that has been carried out toward the establishment of standards for ephedrine hydrochloride and ephedrine sulphate. The Laboratory's report shows that the ephedrine hydrochloride of the Abbott Laboratories and of Burroughs, Wellcome & Co. meet the provisional standards. It appears that a pure sulphate has not yet been prepared successfully on a commercial scale. The work that is being carried out in the laboratories of Eli Lilly & Co., however, gives promise that a satisfactory product will shortly be available. Furthermore, the firm has decided to discontinue the use of the nondescriptive trade name "Fedrin," and has adopted the name "Ephedrine Sulphate-Lilly" in its stead.

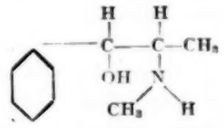
The Council (1) endorsed the report of the A. M. A. Chemical Laboratory, "Ephedrine Hydrochloride," and provisionally adopted the submitted standards for ephedrine hydrochloride; (2) it voted to admit ephedrine to New and Nonofficial Remedies; (3) it voted to accept, unless other conflicts appear, the ephedrine hydrochloride of the Abbott Laboratories when the advertising claims are submitted and found acceptable; (4) it voted that, unless other conflicts appear, the ephedrine hydrochloride of Burroughs, Wellcome & Co. be accepted when the product is marketed in the United States and the advertising has been found acceptable; and (5) it voted to accept Ephedrine Sulphate-Lilly when the firm has achieved satisfactory standards in the manufacture of the product and when the advertising claims are found acceptable.

EPHEDRINE HYDROCHLORIDE

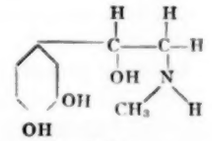
Report of the American Medical Association Chemical Laboratory

Ephedrine is an alkaloid first obtained by Nagai in 1887 from the Chinese drug ma huang, known botanically as *Ephedra equisetina*. Since its discovery, considerable chemical work has been done on the alkaloid, but the drug has never been adequately standardized because of the fact that until recently it was not considered therapeutically important. Recent work of investigation, both in China and in this country,[1] has shown that the drug has possibilities of being a valuable therapeutic agent, so that considerable interest has been aroused. In view of this, specimens of the drug were obtained by the A. M. A. Chemical Laboratory for the purpose of the chemical investigation.

Ephedrine and epinephrine have certain similarities in therapeutic action and in chemical composition; the chemical similarity can be strikingly seen by comparisons of the structural formulas, and, conversely, the differences in action can be better appreciated by noting the chief points of difference in the molecular arrangement.



Ephedrine



Epinephrine

It will be noted from the foregoing structural formula that the side chain of ephedrine contains three consecutive carbon atoms; accordingly, the compound is named α-hydroxy-β-methylamino-propylbenzene. The side chain in epinephrine contains only two consecutive carbon atoms and its name therefore is α-hydroxy-β-methylamino-*3,4*-dihydroxyethylbenzene. Epinephrine has two hydroxyl groups connected to the benzene nucleus that are lacking in ephedrine. These two hydroxyl groups in the epinephrine molecule make it susceptible to oxidation, so susceptible in fact that the drug is not stable in the air. On the other hand, the ephedrine molecule is stable in the air to the extent that no change was found in a 5 per cent solution of ephedrine hydrochloride after it had stood for six months. This great resistance of ephedrine to oxidation offers one explanation why it may exert therapeutic action when administered by mouth, in which it differs greatly from epinephrine. Attention should be drawn to the two asymmetrical carbon atoms in ephedrine and to the one in epinephrine. The configuration of ephedrine allows of four possible isomers (*d*-ephedrine, *l*-ephedrine, *d*-psuedo-ephedrine, *l*-psuedo-ephedrine), all of which have been synthesized and isolated.[2] It will be recalled that in the case of epinephrine

1. Chen, K. K.: J. Am. Pharm. A. **14**: 189, 1925. Chen, K. K., and Kao, C. H.: Ibid. **15**: 625, 1926 (an excellent chemical review and bibliography of ephedrine). Chen, K. K., and Schmidt, C. F.: J. A. M. A. **87**: 836 (Sept 11) 1926 (a pharmacologic and clinical review). Chou, T. Q., and Read, B. E.: Proc. Soc. Exper. Biol. & Med. **23**: 618, 1926. Miller, T. G.: Am. J. M. Sc. **170**: 157 (Aug.) 1925. Miller, T. G.: Ann. Clin. Med. **4**: 713 (March) 1926. MacDermot, H. E.: Canad. M. A. J. **16**: 422, 1926. Barlow, O. W., and Sollmann, Torald: J. Pharmacol. & Exper. Therap. **30**: 21-29, 1926. Brown, G. E., and Rowntree, L. G.: Endocrinology **10**: 301-316, 1926.

2. Späth and Göhring: Monatsh. **41**: 319, 1920.

it was found that a mixture of the two optically active isomers was not as efficient as the product extracted from the suprarenal glands. This led to the discovery that the dextro form of epinephrine was almost inactive, while the *l*-epinephrine was very active; that was the form present in the suprarenal extract. A similar situation would be expected in the case of ephedrine; hence in the standards it has been the aim to rule out the dextroproduct, as well as pseudo-ephedrine.

The laboratory has examined two commercial specimens of ephedrine hydrochloride and a preliminary specimen (not commercial) of ephedrine sulphate obtained from Peking, China. In addition, the laboratory has also investigated a commercial specimen of ephedrine sulphate and has drawn up tentative standards for the sulphate; but it was found that the commercial specimens of ephedrine sulphate are not yet of sufficient purity to warrant their acceptance. Since the manufacturers are working actively toward producing a pure sulphate and the specimens are therefore changing in composition, it would not seem worth while to report definitely on their present products alone; but to wait a reasonable time for the outcome of this work, before rendering a full report on ephedrine sulphate.

The results obtained in the examination of the material are recorded in the accompanying table.

Results of Examination

	Hydrochloride			Sulphate		
	B. W.[2]	Abbott[1]	Reported or Theory	Lilly[3]	Peking[4]	Reported or Theory
Loss in weight at 100 C.....	0.22%	0.4%		0.24%	1.80%	
M. P. (uncorr.)	217 C.	217 C.	216 C.	239 C.	230 C.	235-236* C.
Sp. rotation...	−33.78	−33.48	−36.66 −32.5	−26.12	−5.97	−30
Chloride (Cl^-).	17.34% 17.68%	17.59% 17.48% 17.58%	17.58%	.....	.....	.....
Sulphate (SO_4^{--})				23.03% 23.13%	21.80% 21.91%	22.88%
Ephedrine.....	81.53% 80.27% 80.41%	80.04% 80.08%	82.42%	75.56% 74.77%	71.73% 71.55%	77.12%
Sp. Rot. of free base in alcohol (absolute)	−6.8	−7.3	−6.3	−4.5	+7.5	−6.3
Ash.....	None	None		None	None	
M. P. chlorplatinate..... (uncorr.)	186 C.	181 C.	184-186 C.	181 C.		184-186 C.
Per cent platinum.....	24.68	25.68	26.37	24.92		26.37

1. Ephedrine hydrochloride. The Abbott Lab., Chicago.
2. Ephedrine hydrochloride. Burroughs, Wellcome & Co., London.
3. Ephedrine sulphate. Eli Lilly and Co., Indianapolis.
4. Ephedrine sulphate. Preliminary specimen from Peking, China.

* Ephedrine sulphate melts with partial decomposition. We have obtained "melting points" on some material as high as 243 (corr.); these cannot be reported as authentic, as rigorous investigations of the constitution of the specimens of ephedrine sulphate were not made.

The melting point of ephedrine alkaloid is from 39 to 40 C. It has been reported in the literature a number of times as high as 210 C. The mistake undoubtedly came about in shaking out the ephedrine base with chloroform as performed in the usual method for removing alkaloids. The A. M. A. Laboratory noted that when this is done there is a reaction with the chloroform, so that the hydrochloride is obtained instead of the free alkaloid. It is proposed to study this reaction further in view of utilizing it as a ready means of assay.

Chlorplatinates of ephedrine were prepared. In the case of one specimen (Ephedrine Sulphate, Peking) there was yielded an oily substance from which crystals of the chlorplatinate could not be obtained. The results of the platinum determination confirmed the previously reported formula[3] for ephedrine platinic chloride.

The laboratory appreciates that standards devised for a drug as new as ephedrine must be subject to revision; the following standards for ephedrine hydrochloride are therefore proposed subject to that stipulation. An examination of the results reported in this paper indicates that Ephedrine Hydrochloride Abbott and Ephedrine Hydrochloride Burroughs-Wellcome & Co. comply with the proposed standards.

EPHEDRINE HYDROCHLORIDE

EPHEDRINE HYDROCHLORIDE.—Ephedrinae Hydrochloridum.—*laevo*-methylaminopropanol benzene hydrochloride. —*alpha*-hydroxy-*beta*-methylamino-propylbenzene hydrochloride. — *l*-phenyl-*2*-methylamino-propan-*1*-ol hydrochloride. $C_6H_5.CHOH.CH(NHCH_3).CH_3.HCl$. The hydrochloride of an alkaloid obtained from ma huang.

Ephedrine hydrochloride occurs as white, odorless, prismatic needles that are soluble in water and alcohol and insoluble in ether. The water solution is neutral to litmus. It melts between 216 C. and 220 C. The specific rotation $[a]\frac{20}{D}$ should fall between −33.0 and −35.50.

Dissolve 0.005 Gm. of ephedrine hydrochloride in 1 cc. of water and add 0.1 cc. of copper sulphate solution (10 per cent) followed by 1 cc. of sodium hydroxide solution (20 per cent): a reddish purple color develops. To this solution add 1 cc. of ether, shake the mixture and compare with a tube made up similarly but without using ether: the reddish purple color is partially extracted (apparently decolorized) by the ether.

Dissolve 0.05 Gm. of ephedrine hydrochloride in 10 cc. of water, add 1 cc. of ammonia water and shake out with two 15 cc. portions of chloroform, filter the chloroform through a chloroform soaked cotton pledget and allow to stand twelve hours, evaporate: white crystals of ephedrine hydrochloride appear; wash with a little chloroform; dry: the crystals melt between 214 and 220 C.

To 1 cc. of a solution containing 0.005 Gm. of ephedrine hydrochloride, add two drops of diluted nitric acid and two drops of silver nitrate solution: a white precipitate forms, soluble on addition of ammonia water in excess.

Dissolve 0.05 Gm. of ephedrine hydrochloride in from 30 to 40 cc. of distilled water, add 1 cc. of diluted hydrochloric acid and 1 cc. of barium chloride solution: no turbidity develops in ten minutes (*limit of sulphate*).

Dissolve about 0.2 Gm. of ephedrine hydrochloride, accurately weighed in 10 cc. of water in a separatory funnel and add 5 cc. of ammonia water; shake the mixture vigorously with 6 portions of ether, using 25 cc., 20 cc., 15 cc., 15 cc., 15 cc., and 15 cc., respectively; combine the ether extractions and distil to a small volume, transfer to a tared beaker and evaporate spontaneously; dry in a desiccator for twelve hours; weigh: the weight of the residue is not less than 80 per cent, nor more than 82.5 per cent.

The specific rotation $[a]\frac{20}{D}$ of a residue obtained as described in the foregoing assay, weighing about 0.3 Gm. dissolved in absolute alcohol to make 10 cc. of solution is between −6.0 and −7.5 (*limit of isomers*).

Dissolve about 0.07 Gm. of ephedrine hydrochloride, accurately weighed, in 200 cc. of water, heat to boiling and add 4 cc. of diluted nitric acid and silver nitrate solution in slight excess; allow to stand for six hours, transfer to a Gooch crucible, wash well with hot water and then with cold; dry at 100 C., cool in a desiccator and weigh: the chloride (Cl^-) calculated from the silver chloride weighed is not less than 17.30 per cent nor more than 17.7 per cent.

The ash from 0.1 Gm. weighs less than 0.0001 Gm.

3. Chen, K. K., and Kao, C. H.: J. A. Pharm. A. **15**: 631, 1926.

Vocational Guidance.—In 1910 New York created an office for directing the careers of young persons. In 1918 the Junior Placement Division of the United States Employment Service came into being; it offers "a scientific means of effectively distributing the school products," and holds that education does not end when the pupils leave school. Every one can be found work, a person not qualified for one trade being capable of succeeding in another. The work today is organized as an educational function, and record cards are now generally kept in schools, for use in choice of an occupation. Physical disabilities and tendency to illness, among other things, are recorded; but as yet the part played by the medical profession is limited and indirect. The scholars have industries explained and are taken to see occupations. Psychological tests for discovering aptitudes are rather receding from the high claims once made for them, and today "interest" is held to be one of the most useful of vocational guides; it is closely related to ability. Monographs are published to enable teachers to adapt instruction to future vocational needs, to assist guidance officers in placing young persons, and to aid pupils in the choice of occupation. The training of vocational guidance officers is undertaken by a number of colleges and universities.—*International Labor Review* **13**:48, 1926; Abstr. *Bull. Hyg.*, December, 1926.

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SATURDAY, FEBRUARY 12, 1927

THE PHYSICIAN'S RESPONSIBILITY IN PREVENTIVE MEDICINE

Practicing physicians are not infrequently criticized by public health officers, welfare workers, publicists and others because of their alleged neglect of anti-smallpox vaccination, antityphoid vaccination, anti-diphtheria inoculation, and other practices calculated to prevent disease. The accusation is a challenge to the medical profession. However, the general practitioner should not accept the full responsibility for all these sins of omission. Many of those who now criticize have for some years been "educating" the public to the belief that the public health clinics, health centers, voluntary health bodies and what-not were anxious to render these services "free" to rich and poor alike and that "free" meant both the cost of materials and medical service. Is it not logical to charge part of the disturbing conditions to the error in "education" of the public; to the inadequacy of the free service and materials; to the indifference of an "educated" public?

The physician who has spent thousands of dollars and eight or ten years of his life above high school for his education, who pays his license fees, federal, state, county and municipal and his other taxes, who must spend additional thousands for essential equipment and transportation facilities, who must serve free the poor among his clients, and who must live as other citizens, cannot be expected to compete with "free" services. True, the dispensers of "free" money do, in some places, help the private physician out by supplying some of the materials for some of the services, provided the physician cares to comply with the red tape required to explain the disposition of these supplies, including a certificate that his patient was indigent. These are a few of the many reasons that influence many private physicians in declining to continue in competition with government and voluntary organizations in the rendering of services that every one of our 120 million people needs periodically, and for which those who are able should pay.

Formerly, protective inoculations and similar forms of medical practice were a responsibility of the physician to his clients, with government and other charity-serving organizations looking after the poor. Although most of the controllable infections were among the poor, organizations, government and otherwise, decided to extend their charity to rich and poor alike. After promoting this effort with every means of publicity, some now criticize physicians because many of them discontinued the practice of preventive medicine in the face of such competition.

What the outcome will be of a problem of which this is but one phase, it is impossible to foresee. If only the welfare of 150,000 physicians were at stake, they and their methods might be sacrificed to the common good. But one should be positive that he is on the road to permanent betterment of all the people before proceeding to damage irreparably the existing order. A relationship that would prove mutually helpful to personal physicians and to public health officials and of incalculable benefit to all the people ought to be feasible.

THE SYNTHESIS OF SPERMINE

Nearly sixty years ago, Boettcher [1] described the preparation of a crystalline substance from human semen. Through this discovery the name "Boettcher's crystals" came into notice. Subsequently Schreiner [2] demonstrated that these represent a compound of phosphoric acid with an organic base, afterward designated "spermine." It is a singular fact that the crystals of spermine phosphate had evidently been seen and depicted by Leeuwenhoek, the pioneer microscopist, in 1678, and rediscovered and accurately described anew by Vauquelin in 1791. Other investigators may have seen the same crystals, but Schreiner was apparently the first to recognize their true nature.

At one time the statement was current that the characteristic odor of semen is attributable to the disintegration of spermine. The Russian physiologist Alexander von Poehl also reported, about 1890, that he had isolated spermine phosphate from testis and other organs. It was his writings in particular that brought the substance into medical prominence soon after. He asserted that it had a marked action in some undefined manner on the oxidative processes of the body, so that subcutaneous injections of the base would promote tissue respiration. In a number of publications by von Poehl and other contemporaneous writers, spermine prepared from the testes of young bulls and other animals was recommended as a sovereign remedy for all sorts of ills and weakened conditions. Reviewing von Poehl's work, Rosenheim [3]

1. Boettcher, A.: Farblose Kristalle eines eiweissartigen Körpers aus dem menschlichen Sperma dargestellt, Virchows Arch. f. path. Anat. **35**: 525. 1868.
2. Schreiner, P.: Ueber eine neue organische Base im tierischen Organismus, Ann. d. Chem. u. Pharm. **194**: 68, 1878.
3. Rosenheim, O.: The Isolation of Spermine Phosphate from Semen and Testis, Biochem. J. **18**: 1253, 1924.

has remarked that the chemical investigation, incomplete and vague as to details, stands discredited together with his pharmacologic and clinical work, on account of his persistent commercial exploitation of the assumed valuable therapeutic properties of spermine. The spermine phosphate crystals have been regarded as identical with the long known Charcot-Leyden crystals, but this does not now seem to be the case.

Interest in the seminal product presently subsided, so that the name spermine disappeared from many textbooks on physiologic chemistry. Various efforts to secure the crystals were unsuccessful. Recently the study has been resumed, particularly by English biochemists. The base spermine has been isolated from the testis, ovary, pancreas, muscle, liver, brain, spleen, thymus and thyroid. It has also been obtained from yeast. Subsequently it was demonstrated [4] to be identical with musculamine, neuridine and gerontine, bases which have been obtained from calf's muscle, human brain and dog's liver, respectively, by earlier investigators. The evidence regarding its physiologic rôle remains scanty. Its recently discovered absence from bull's semen appears to indicate that it is not essential for fertilization in general, while the fact that it is not present either in the egg or in milk implies that it is not essential to the development and growth of the young animal. Spermine will not replace vitamin B in nutrition. The most recent contribution [5] to the knowledge of spermine is the demonstration of its structural formula and the verification of this by chemical synthesis. It is $NH_2(CH_2)_3NH(CH_2)_4NH(CH_2)_3NH_2$, the first instance of a base of this type, containing the trimethylenediamine group, found in nature.

METABOLIC CONSEQUENCES OF FASTING

The possible effects of deprivation of food are being given more than merely academic interest. Starvation, partial or complete, is a condition that is sometimes enforced on the individual by circumstances, such as disease, that are beyond his immediate control. Fasting may be indulged in by persons not only under medical prescription but also on the voluntary basis of less professional motives. It would not be difficult to find either laudatory or condemnatory comments with respect to the physiologic consequences of a temporary fast. At present, concern is being expressed regarding the possible dangers of the current vogue, among younger women of this country in particular, of attempting to cultivate a "sylphlike physique" through abstinence from food. The "slender figure" seems to be a desideratum in the local world of fashion. On the other hand, certain "health faddists" laud the advantages of even prolonged abstinence from food for certain persons.

The general features of inanition have long been known. There is a loss of weight, which tends to be followed by a lowering of the basal metabolic rate if the deprivation of food is continued sufficiently. Prolonged undernutrition leads to muscular inefficiency, lassitude and lowered capacity for effective work. Some of the manifestations are being depended on in therapeutic ways to secure desired changes in the body, notably for the relief of convulsions in epilepsy.

Starvation may ultimately give rise to outspoken manifestations of bodily disorder, such as the so-called nutritional edemas of war-time food deprivation origin. There may also be avitaminoses due to the lack of specific factors on which proper physiologic behavior depends. These are, however, the extremes of a perverted function. Some insight into the early changes before the organism actually has been depleted of all its essential stores is needed. As a recent writer [1] has stated, although there have been extensive studies of the metabolism of fasting men and animals, as revealed by examinations of the urine and the expired air, comparatively little has been written concerning alterations in the concentration of various chemical components of the blood. The latter is today regarded as giving a more direct picture of some of the actual metabolic possibilities of the body. Observations made in Boston hospitals on the chemical changes in the blood by Lennox [1] during and subsequent to fasting periods of both epileptic and normal persons show that during the abstinence from food, nonprotein and urea nitrogen varied considerably from day to day, with a tendency toward increased concentration; amino-acid nitrogen remained remarkably constant, and uric acid rose independently of other components examined. In the period of refeeding, nonprotein and urea nitrogen and uric acid fell to subnormal levels. Sugar fell to a low level during the first week, rising again as the fast progressed. Concentration in plasma was constantly lower than in whole blood. Inorganic phosphorus and calcium remained constant. Plasma bicarbonate was greatly reduced, coincident with an increase in the total acid excretion. Broadly speaking, there were few important changes aside from remarkable increases in the uric acid content of the blood.[2]

When deprivation of water is superimposed on the fast, the results are, as might be expected, far more drastic. Anhydremia is notably harmful. This is presumably due to the unusually rapid destruction of body protein, as evidenced by increased basal metabolism, rapid loss of body weight, and marked fluctuation in the concentration of nonprotein nitrogen in the plasma.

4. Dudley, H. W., and Rosenheim, O.: Notes on Spermine, Biochem. J. **19**: 1034, 1925.

5. Dudley, H. W.; Rosenheim, O., and Starling, W. W.: The Chemical Constitution of Spermine: III. Structure and Synthesis, Biochem. J. **20**: 1082, 1926.

1. Lennox, W. G.: Chemical Changes in the Blood During Fasting in the Human Subject, Arch. Int. Med. **38**: 553 (Nov.) 1926.

2. Lennox, W. G.: A Study of the Retention of Uric Acid During Fasting, J. Biol. Chem. **66**: 521 (Dec.) 1925; Increase of Uric Acid in the Blood During Prolonged Starvation, J. A. M. A. **82**: 602 (Feb. 23) 1924.

NUTRITION AND BEHAVIOR

Nutrition is one of the oldest of the arts and one of the youngest of the sciences. Adequate feeding of the race is a cornerstone on which its development has rested from the beginning; but the dissection of the general nutritive requirements into a relatively few more or less well characterized essentials has been the result, to a large extent, of investigations extending over little more than a decade. The effects of the discoveries of this new science have been widespread. Not only has the feeding of human beings and of farm animals been rationalized, but the entire outlook of modern medicine has been largely changed from the tenet of cure to the point of view of prevention of disease. Moreover, the improvement in the principles and the technic of feeding laboratory animals has facilitated the study of problems not primarily nutritional in character. Thus the immunologist, the pathologist and the physiologist have added to the value of their studies by controlling the diet of experimental animals.

An unusual instance of this sort of collaboration has recently been reported from the laboratories of physiologic chemistry and of psychology at Yale.[1] The stated aim of this investigation was to determine the effect of stunting on behavior in the white rat. The nutritive disturbance was severe, sufficient to prevent any growth in the animals; the criterion of behavior was the skill in learning and retention of a maze problem. After preliminary control trials, the rats were divided into three groups, two of which were so fed, by different methods, that increase in body weight was prevented. When all the animals were put through the relearning trials in the maze, the stunted ones attained maximal proficiency in speed more rapidly than the well fed control rats. Likewise, when a new maze situation was presented to the animals, the stunted rats again solved the problem much faster than the control group. In all the trials, however, the faster animals made more errors than the slower ones. The stunted rats were then realimented, and the accelerated growth rate brought their body weights up to that of the controls. Now when all the animals were put through the maze, the differentiation noted in the former trials entirely disappeared. The difference between the behavior of the stunted rats and that of the controls thus seems to be correlated closely with the nutritive condition of the animals.

These well controlled experiments present certain definite, objective observations. Anderson and Smith[1] have not attempted to apply these results to human conduct. However, the fact that the stunted rats showed marked superiority to the normal animals both in relearning (the behaviorist does not speak of "memory") an old problem and in solving a new situation does not seem to accord with the description recently given by Friedrich von Müller[2] of the physiologic results of underfeeding in Germany during the war. The lowered plane of metabolism, the decreased systolic blood pressure and the resulting difficulty in performing muscular work were accompanied by a marked physical and mental lethargy in those receiving insufficient food. In comparing these observations with the experiments on rats, it should be remembered that the mental equipment and possessions of a rat are probably far more simple than those of a human being. It might then be concluded that the experiments on the rat have yielded results less complicated than the clinical observations on man.

1. Anderson, J. E., and Smith, A. H.: J. Comp. Psychol. **6**: 337, 1926.

Current Comment

SUPPLY OF RURAL PHYSICIANS

In the discussion as to whether or not physicians are disappearing from rural communities, and in the attempt to determine whether the causes for such disappearance are a raising of the standard of medical education, economic changes, improvements in transportation, or other factors, all sorts of surveys have been made and the results published. The extensive investigation made by representatives of the Rockefeller Foundation indicated that the factors were largely economic, and that improvements in transportation had, to a great extent, taken care of the shortage. Dr. William Allen Pusey has urged in various communications that young physicians are not going to rural communities, a fact which he demonstrated by showing that the average age of rural physicians is over 52 years. He has also insisted that practitioners of the various medical cults would take the place of physicians in such communities—an opinion not supported by Dean Lyon's investigations in Minnesota, which showed that cultists also prefer large towns and cities. Dr. Pusey[3] presents evidence in this issue which indicates that the number of physicians in rural communities is distinctly less than it was in 1914, and also that irregular practitioners have come into such communities when physicians did not settle in them. From his investigations, Dr. Pusey concludes that the cost of medical education and the difficulty in securing a diploma are responsible for the conditions that exist. Whether or not these conclusions are warranted is open to argument. A fundamental consideration would seem to be whether or not rural communities could justifiably be supplied with a lower quality of medical service and a lower grade of medical practitioner than can be had in the city. A chiropractic practitioner is obviously worse than no physician at all. His method is founded on fallacy. Whether or not he practices successful quackery in a rural community or in a city does not bear on the situation. Unquestionably, there are fewer physicians today in rural communities, proportionately, than was formerly the case, but even this fact does not prove that medical service in rural com-

2. Von Müller, Friedrich: Bull. New York Acad. Med. **2**: 502, 1926.
3. Pusey, W. A.: The Disappearance of Doctors from Small Towns, this issue, p. 505.

munities is less efficient than it used to be. The aspects of this problem are so numerous that it can hardly be settled by the determination of any single fact. A proper survey must take into account the entire life of the community concerned. The amount of morbidity in such communities is today far less than it used to be, because of the rise of preventive medicine; obviously, with less morbidity, fewer physicians are needed.

TAR IN THE ATMOSPHERE

Millions of people in large cities are regularly disturbed by dense fog and smoke. Fog is a fleeting danger to life through increased danger of accident, but smoke is a greater nuisance when public health is concerned. There are from 2,000 to 3,000 sooty particles in each cubic centimeter of the atmosphere of London on an ordinary winter day. When the smoke is dense, from 50,000 to 100,000 particles per cubic centimeter are found. The total of this material is better visualized by the statement that 500,000 tons of tar and about 900,000 tons of sulphuric acid are distributed over England annually by means of smoke in the atmosphere. Sneezing, coughing and expectorating prevent many of the sooty particles from reaching the lungs. However, the frequency of anthracosis and pneumonoconiosis is evidence of the number that do reach the alveoli and bronchial lymph glands. Millions of phagocytes and other protective cells are utilized in the attempt to digest or to carry off the tar that is inhaled. Tar is used experimentally to produce cancer of the lungs. Smoke in the atmosphere may or may not be a cause of cancer of the lungs of man, but it certainly is a source of constant irritation. Cleansing the atmosphere of smoke is a huge problem that will be successfully met only after long and highly skilful efforts have been made. Hood, of the United States Bureau of Mines, asserts that the task is a public health problem that should be thought of in the same terms as keeping the streets clean.

Association News

THE WASHINGTON SESSION

Special Exhibit on Immunology

The Committee on Scientific Exhibit of the Board of Trustees, on the recommendation of its Advisory Committee last year authorized a Special Exhibit on Immunology having a two year program. Owing to the large scope of the work a few of the topics were not shown last year, being deferred to this year. The exhibit for the Washington Session is being planned by Dr. H. Wahl, Professor of Pathology of the University of Kansas with the collaboration of Dr. E. R. Dyer, Surgeon, United States Public Health Service, Washington, D. C. Various individuals and organizations will also cooperate in supplying material. The exhibit, on the whole, will follow the plan of last year, emphasizing the general applications of immunology. There will be booths devoted to the demonstration of the application of toxins, antitoxins, agglutinins, hemolysins, vaccines, etc. Tuberculins, smallpox vaccines, rabies vaccines and allergins will be included in this exhibit. The United States Public Health Service is also generously preparing a correlating exhibit on smallpox vaccination.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Society News.—Brig. Gen. Robert E. Noble, U. S. Army, retired, addressed the Calhoun County Medical Society, Anniston, January 11, on "Some Practical Applications of Preventive Medicine."

Bills Introduced.—Senate bill 107 and house bill 177 provide a method of selecting medical and surgical staffs for city and charity hospitals. House bill 242 defines wilful negligence as included under the workmen's compensation act.

ARIZONA

Bill Introduced.—Senate bill 22 would require hospitals that are exempt from taxation to admit patients of a regularly licensed physician. Senate bill 64 provides for a board of examiners in the basic sciences similar to that proposed in senate bill 16, which was recently killed.

ARKANSAS

Temporary Licenses to Undergraduates.—The councilors of the Arkansas State Medical Society at the December, 1926, meeting in Little Rock, considered the introduction of a bill in the legislature which would authorize any student in the state school of medicine who had completed his junior year to practice in a designated rural community for a period not to exceed fifteen months. The temporary license plan was considered as a means of providing medical service in rural communities having not more than one registered physician.

Personal.—Dr. Robert Caldwell, Little Rock, has been elected chief of staff of St. Vincent's Infirmary, Little Rock, to succeed Dr. Dewell Gann, Jr.——Dr. John R. Dibrell, Little Rock, has been appointed a member of the state board of health.——Dr. Anderson Watkins, Little Rock, has been elected president of the Pulaski County Medical Society.——Dr. Lorenzo D. Duncan, Waldron, has been appointed a member of the state board of health.——Dr. Louis L. Marshall, Little Rock, has resigned as a member of the state board of health and of the eclectic board of medical examiners.——Dr. and Mrs. Thomas J. Woods, Evening Shade, recently celebrated their golden wedding anniversary.

University Broadcasts Medical Lectures.—The University of Arkansas inaugurated a weekly radio medical extension service, January 6, from station KUOA. The first radio lecture was by Dr. Charles C. Bass, New Orleans, dean of Tulane University of Louisiana School of Medicine, on "Treatment of Malaria." Programs will be broadcast at 8 o'clock, Thursday evenings. Dr. William Engelbach was the speaker, January 13, on "Backward or Defective Children, Physical and Mental, Due to Disorders of the Ductless Glands"; Dr. Frank Smithies, Chicago, January 20, "Symptoms, Signs and Methods Available for Early Diagnosis of Alimentary Tract Cancer," and Dr. Frederick G. Banting, Toronto, Canada, January 27, "Some Aspects in the Management of Diabetes." Future lecturers in this service will be Drs. George Dock, Pasadena, Calif.; William J. Mayo, Rochester, Minn.; Francis M. Pottenger, Monrovia, Calif.; Nathaniel Allison, Boston, and Williams McKim Marriott, St. Louis.

CALIFORNIA

Bills Introduced.—Senate bill 135 provides that the state board of pharmacy shall appoint a chief narcotic enforcement officer. Senate bill 175 provides for examination and licensing of applicants for the practice of pharmacy. Senate bill 73 establishes standards of examination and practice for persons who treat any disease of human beings, and provides for the powers and duties of a board of medical examiners. House bill 178 amends the law relating to reciprocity of certificates for the practice of medicine.

Society News.—Dr. George E. Brown, Rochester, Minn., addressed the Los Angeles County Medical Society, February 3, on "Recent Developments of the Treatment of Peripheral Vascular Diseases."——At the February 11 meeting of the Los Angeles Surgical Society, Los Angeles Gen-

eral Hospital, Dr. Charles T. Sturgeon spoke on "Perforated Ulcer of the Stomach," and Dr. Walter A. Bayley on "Diagnosis of Intestinal Obstruction."——Dr. William H. Kiger was elected president of the Southern California Medical Golf Association at the annual dinner, Hollywood Country Club, January 12; sixty-four members played in a tournament preceding the dinner, and the various yearly trophies were awarded the winners.

COLORADO

Personal.—Dr. Claude L. LaRue, Boulder, has assumed charge of the eye, ear, nose and throat section of the Highland Clinic, Shreveport, La.——Dr. Atha Thomas has become associated with the staff of Minnequa Hospital, Pueblo.

Bills Introduced.—Senate bill 347 requires that employers must furnish medical services and artificial members to employees injured under the workmen's compensation act. House bill 350 relates to the practice of the healing art, establishing educational qualifications therefor. House bill 509 provides for the sterilization, after investigation, of certain persons.

CONNECTICUT

Bills Introduced.—Senate bill 145 would repeal the law forbidding use of instruments or drugs to prevent conception. Senate bill 375 provides for investigation for the cause of cancer by the state department of health. House bill 379 provides for the licensing of hospitals that care for persons suffering from disease or other abnormal conditions. House bill 547 provides that chiropractors may sign death certificates. House bill 381 provides for the registration of certificate of stillbirth. House bill 465 provides for exemption of children from vaccination when a certificate of conscientious objection is filed. House bill 518 provides that actions for negligence against physicians, dentists and hospitals must be instituted within one year. House bill 525 provides for the making and filing of death certificates by naturopathic physicians. House bill 566 provides for a yearly license fee of $3 from all naturopaths. House bill 715 relates to the revocation and suspension of license or registration to practice the healing arts. Senate bill 522 provides for the registration and examination of candidates for admission to practice osteopathy. Senate bill 524 provides for the registration and examination of candidates for admission to practice naturopathy. Senate bill 525 provides for the examination and registration of candidates for admission to practice chiropractic. House bill 595 provides for the examination of persons who test milk and cream for public use. House bills 699 and 760 establish a state board of healing arts, and provide standards for admission by reciprocity. House bill 731 prohibits any person from advertising as a physician who is not legally entitled to use such title. House bill 735 regulates the revocation of certificates to practice medicine.

DISTRICT OF COLUMBIA

Three Day Osteopaths.—A considerable number of osteopaths are practicing osteopathy in Washington on the strength of a "degree" obtained by a three-day course of instruction. In 1923, according to the Washington *Star*, an osteopath gave a course at a chiropractic school in Washington advertising degrees in osteopathy for from $50 to $100, depending on the size of the class; that course covered a period of three days. One of these abbreviated osteopaths was recently connected with a criminal case. Under the present law in the district, it seems almost anybody can hang out a shingle and start practicing osteopathy. About fifty "doctors of osteopathy" brought various sorts of diplomas to the assistant U. S. attorney's office, February 3, in response to subpenas, and were questioned as to the source of their professional education. Some of the three day graduates displayed with pride handsomely printed diplomas, on some of which it was stated that the schools were chartered by the Congress of the United States.

FLORIDA

Diploma Mill Trial Opens Soon.—Almost ten years of effort of the old "regular" board and the present composite board of medical examiners to eliminate illegal and fraudulent practitioners of medicine have resulted in the arrest and indictment of a number of persons, who will be tried in Tampa during the term of court, which starts February 14. The voluminous data which the boards collected were laid before a federal grand jury; indictments were returned in some cases on charges of using the mails to defraud, or of having practiced medicine with diplomas and licenses obtained illegally, or of having illegally issued diplomas and licenses. The secretary of the present board of examiners, Dr. William M. Rowlett, believes that this investigation will prove to be more startling than the Connecticut diploma mill investigation, and that it may reach all sections of the country. A batch of licenses for the old Florida Eclectic Board of Medical Examiners was made by a lithographing house in Birmingham, Ala., in 1919, of which some officers of the board at that time have denied knowledge. The old "regular" board of examiners went out of existence in 1920, yet a Birmingham printing house ordered fifty copies of licenses of this board from a Jacksonville company in 1922, and the order was delivered. The Tampa *Tribune* stated that, in many towns of Florida, "doctors" without medical training, licensed through fraud and trickery, were ministering to the sick. It is this situation which the present state board hopes will be cleared up by this investigation. Among those who have been indicted or are being sought by federal authorities are said to be:

Dr. George A. Munch, Tampa, formerly secretary of the old board of eclectic medical examiners.
"Dr." Charles C. Faiman, formerly of Chicago
John J. Heitz, Orlando
Paul C. Ronning, Lake Worth.
William H. H. Sharpe, St. Petersburg.
Joseph M. deGaetani, formerly of Jacksonville
Lloyd B. Riley, St. Petersburg
Dr. Samuel McCubbin, Kansas City, Mo.
"Dr." Benedict Lust, New York, naturopath and publisher of *Nature's Path*.
William A. Lucia, Brooklyn
Francisco P. Trapani, New York City
Francis T. Shyne, Washington, D. C.
Charles Wade Page, Chipley.
Edward J. Roach, formerly of Ormond.
Henry D. Sbordi, St. Petersburg

IDAHO

Bill Introduced.—House bill 88 would permit osteopaths to practice surgery.

Personal.—Dr. William T. Drysdale, New Plymouth, has been appointed health officer of Payette County.

ILLINOIS

Liquor Permits Restored.—Pursuant to an appeal from the order of revocation, the liquor permits of Dr. Oscar P. Harris, Mendota, have been restored and the order of revocation set aside. Dr. Harris conducts a hospital at Mendota.

Society News.—Dr. Selmes Paul Funkhauser, St. Louis, addressed the Madison County Medical Society, February 4, Edwardsville, on "Significance of Red Blood Cells in the Urine."——Dr. Elven J. Berkheiser, Chicago, addressed the Aurora Medical Society, January 21, on "Osteomyelitis and Septic Arthritis of the Knee."

Hospital News.—The Peoria Municipal Tuberculosis Sanatorium has opened a new addition which makes the capacity of the institution eighty beds; patients from neighboring counties are also admitted to the sanatorium.——The secretary of the Methodist Board of Hospitals and Homes, 740 Rush Street, Chicago, recently took over the Freeport General Hospital, Freeport, which will be known hereafter as the Freeport Methodist Memorial Hospital.

Chicago

Dr. Alfred Adler's Lecture.—Dr. Alfred Adler of Vienna, Austria, will lecture at the Union League Club, 69 West Jackson Boulevard, February 15, 6:15 p. m., on "Discouraged Life." The occasion will be a joint dinner meeting of the Illinois Society for Mental Hygiene and the Chicago Association for Child Study and Parental Education. The public is invited; reservations may be made at 308 North Michigan Avenue, office of the society (State 4477); dinner $2.

Campaign for New Women's Hospital.—Headquarters have been established in the Morrison Hotel to obtain $500,000 for a new building for the Women and Children's Hospital of Chicago, now at 1712 West Adams Street, formerly known as the Mary Thompson Hospital. The present building has been in use for forty-one years, and is now so outworn that one third of it has been closed. This hospital was founded by Dr. Mary Thompson in 1865 to aid widows and orphans of the Civil War. The site for the proposed 100 bed building is at Ashland Avenue and Maypole Street. There are opportunities for memorial gifts ranging from $50,000 for an operating room to $2,500 for an examining room, and of gifts for units such as a dispensary wing ranging from $100,000 to $15,000 for a solarium. The outpatient depart-

ment of the Women and Children's Hospital last year treated 9,075 cases, mostly without charge. This is said to be the only hospital in the country whose staff is made up entirely of women.

Changes in Medical Personnel at the University.—The board of trustees of the University of Chicago made the following appointments during the autumn quarter of 1926:

Dr. Francis A. Lane, clinical professor and vice chairman of the department of ophthalmology in Rush Medical College, from Oct. 1, 1926, to June 30, 1927.
Dr. Friedrich Hiller of the University of Munich, associate professor of medicine, for a term of three years, on a four-quarter basis.
Jean Balfour, instructor in the department of nursing, supervisor of clinical nursing, and second assistant superintendent of nurses, for nineteen months from March 1, 1927, on a four-quarter basis.
Marie Hinrichs, research associate in the department of physiology, for one year from Oct. 1, 1926.
Jeanette B. Obenchain, research associate in the department of anatomy, for one year from Oct. 1, 1926.
Dr. Max P. Gethner, clinical associate in the department of medicine in Rush Medical College, for one year from July 1, 1926.
Powis L. Heitmeyer, research fellow in the department of pediatrics in Rush Medical College, for the autumn quarter, 1926.

Dr. Joseph A. Capps and Dr. Joseph L. Miller have been transferred from clinical professorships in the department of medicine, Rush Medical College, to clinical professorships in the department of medicine, Ogden Graduate School of Science for three years from July 1, 1927. The board accepted the resignation of Dr. Julius E. Lackner as assistant clinical professor in the department of obstetrics and gynecology at Rush Medical College.

INDIANA

Society News.—Dr. Clarence J. Broeman, Cincinnati, will address the Rush County Medical Society, Rushville, March 7, on "Radium as a Therapeutic Agent," illustrated with lantern slides.

Bills Introduced.—House bill 215 provides that members of the state medical board shall not be practicing physicians and shall not be connected with any medical school. Senate bill 74 regulates insanity inquests and commitments to hospitals for insane. House bill 75 would repeal the act relating to sale of drugs.

KANSAS

Bills Introduced.—House bill 134 regulates the practice of chiropody. House bill 139 provides for the appointment of public health nurses by boards of education of any incorporated city. House bill 123 would prohibit use, possession and sale of opium and cocoa leaves. House bill 102 would require a physician's certificate of mental and physical soundness as a prerequisite for obtaining a marriage license. House bill 167 would authorize cities to levy a tax for the purpose of aiding in the support of a hospital wherein charitable aid and medical care is extended to patients of such city.

LOUISIANA

Personal.—Dr. Louis Levy has been named president of the staff of Hotel Dieu, said to be the oldest hospital in New Orleans.——Dr. Charles F. Gelbke, mayor of Gretna, was guest of honor at a banquet at Suburban Acres, recently, given by friends from New Orleans, Jefferson and St. Charles parishes.——Dr. Robert G. Hawkins, Palmetto, has been elected president of the St. Landry Parish Medical Society for the ensuing year.

Health at New Orleans.—Telegraphic reports to the U. S. Department of Commerce from sixty-eight cities with a total population of about 28 million for the week ending January 22 show that the highest mortality rate (23.2) was for New Orleans, and that the mortality rate for the group of cities as a whole was 14. The mortality rate for New Orleans for the corresponding week last year was 22.5, and for the group of cities, 14.7.

MASSACHUSETTS

Infant Mortality at Somerville.—According to the U. S. Department of Commerce, the highest infant mortality rate (144) for the week ending January 29 among a group of sixty-seven cities with a total population of about 30 million was in Somerville. The infant mortality rate for Somerville for the year 1925 was 77.

Bills Introduced.—House bill 852 relates to the furnishing of medical and hospital service under the workmen's compensation law. House bill 854 relates to the payment of compensation for total or partial incapacity under the workmen's compensation law. House bill 204 would require the vaccination of children in private schools.

Jury Finds Walsh Guilty.—Dr. Thomas E. Walsh, Boston, was found guilty by a jury for performing an operation with intent to produce an abortion, and for conspiracy to bring about the performance of an operation of this character. The *Boston Medical and Surgical Journal* reports that the patient died, and up to the date of writing, Walsh has not appeared for sentence. The board of registration revoked Walsh's license to practice in 1921.

MICHIGAN

Postgraduate Conferences.—The postgraduate conferences held during December at Owosso, Saginaw and Port Huron were attended by 188 physicians, and the state medical journal notes that the attendance at the last lecture was as high as that at any other. The programs were presented almost entirely by speakers from the state of Michigan.

Research Institute at Ann Arbor Dedicated.—The Thomas Henry Simpson Memorial Institute for Medical Research at Ann Arbor was dedicated, February 10, and Drs. Cyrus C. Sturgis and Raphael Isaacs, former members, department of internal medicine of Harvard Medical School, were installed as director and assistant director, respectively. The principal address at the dedication was given by Dr. Henry A. Christian, professor of medicine at Harvard. The institute is a memorial to the late Thomas Henry Simpson of Detroit, whose widow gave to the University of Michigan more than $4.0,000, half of which was used to construct and equip the building, and the remainder set aside, so that the interest can be used for salaries of the staff. The institute is in front of the University Hospital, which will supply the nursing, orderly and janitor services. It is of the early Italian Renaissance type, and the material Indiana limestone. There is a huge fireplace at the end of the lobby. The library is paneled in black walnut with built-in book cases, and also has an open fireplace. On the second floor are eight laboratories, three for chemical, pathologic and bacteriologic study, and five for studies of the blood. The third floor is for the clinical study of patients; there are two three-bed wards, one two-bed ward and one private room. There are classrooms in the basement, and animal rooms. Research will be directed primarily toward the investigation of pernicious anemia, for which the institute offers an extraordinary opportunity.

MISSOURI

Dog Bites.—An unusual number of persons in Kansas City are under treatment for possible rabies from dog bites. About 500 dogs have been vaccinated. The health commissioner, Dr. Ernest W. Cavaness, is assisting in the preparation of an ordinance to be presented to the city council to make the vaccination of dogs against rabies compulsory.

Hospital News.—The clinic pavilion given to the St. Luke's Hospital, St. Louis, by Mr. Edward Mallinckrodt, president of the board of managers, has been completed. It will house the social service section, and will contain offices for the various executives and rooms for outpatient work, in addition to clinic rooms. Mrs. Newton Wilson and the late Mrs. Fannie Carr provided the furnishings.

Society News.—The Jackson County Medical Society, Kansas City, held a symposium on pneumonia, February 1; the speakers were Drs. Merriam, Berger, Montgomery and Cavaness.——The St. Louis Medical Society held a symposium, February 1, on cardiac diseases; the speakers were Drs. Elsworth S. Smith, Luten, McMahon and Falk.——Dr. Luther M. Callaway, Kansas City, will address the Jackson County Medical Society, February 15, on "Otitis Media in Children"; Dr. Caldwell B. Summers, "Treatment of Whooping Cough with Ether Injections," and Dr. Karl A. Menninger, "New Treatment Methods in Mental Diseases."

Bills Introduced.—Senate bill 100 defines and regulates the practice of chiropractic and provides for a board of chiropractic examiners. Senate bill 218 regulates the writing of prescriptions for intoxicating liquors or of which intoxicating liquor is a constituent part. House bill 324 provides for the free treatment of poor children who have any deformity that can probably be remedied. House bill 94 would empower the state university and colleges to offer courses in preventive medicine and oral and dental hygiene. House bill 123 exempts faith healers from certain provisions relative to medical

licenses. Senate bill 240 amends the drugs and pharmacy act so as to include the sale of "patent" and proprietary medicine. Senate bill 241 would compel the filing of formulas of proprietary, patented and trademark drugs and medicines with the secretary of the board of health.

MONTANA

Bill Introduced.—House bill TN 53 regulates the practice of osteopathy.

NEBRASKA

Bills Introduced.—Senate bill 197 provides for the sterilization of potential parents that are feebleminded, criminalistic and inebriate. Senate bill 215 provides that a medical student attending school and in good standing may administer medicine without compensation. Senate bill 217 imposes more stringent qualifications for chiropractors and definitely fixes the hours of study required. Senate bill 61 has been introduced into the legislature and provides for a state board of examiners in the basic medical sciences. Senate bill 95 provides for the sterilization of insane, feebleminded and habitual criminals. House bill 256 provides that physicians, nurses and hospitals shall be entitled to liens for their services in the treatment of an injured person on any damages from the party causing the injury. House bill 473 defines a standard school of chiropractic, and raises the qualifications for the practice of chiropractic. Senate bill 303 would permit wholesale and retail druggists to sell intoxicating liquors on physicians' prescription.

NEW HAMPSHIRE

Bills Introduced.—House bill 211 regulates the marriage of persons having communicable venereal diseases. House bill 285 provides that the workmen's compensation act be extended so as to include all workmen engaged in manual or mechanical labor.

NEW JERSEY

Bills Introduced.—Senate bill 110 fixes the term of city physician for five years. House bill 152 provides for reciprocity in case of optometrists who have practiced in another state for a period of twenty years. House bill 161 regulates the practice of naturopathy. House bill 89 would authorize the appointment by boards of education of registered nurses for the examination of pupils for physical defects. House bill 113 provides for the sterilization of insane and feebleminded persons.

NEW MEXICO

Personal.—Dr. David Kramer has been appointed a co-medical director of the New Mexico Cottage Sanatorium, Silver City. Dr. Kramer has been on the staff of the U. S. Veterans' Bureau Hospital at Fort Bayard.

Bills Introduced.—House bill 97 would make it a misdemeanor to board any person who has chronic tuberculosis. House bill 85 provides for the establishing and maintaining of a home and training school for mental defectives.

NEW YORK

Akron Votes to Improve Sanitation.—The citizens of the village of Akron, Erie County, recently approved a bond issue of $250,000 for constructing a new water supply system. Akron recently passed through a water-borne epidemic of 262 positive cases of typhoid and many other suspicious cases, a total of 414, or about one fifth of the population. The village is also constructing a sewerage system and a disposal plant which will cost more than $100,000.

Personal.—Dr. Arnold Shamaskin, formerly clinical director, U. S. Veterans' Bureau Hospital, Rutland Heights, Mass., has been appointed medical superintendent of the Montefiore Hospital, Bedford Sanatorium, Bedford Hills, N. Y.——Dr. Hugh S. Gregory, Binghamton, has been appointed medical director of the Steuben Sanatorium, Hornell, to succeed Dr. James E. Walker, resigned.——Dr. Clara H. Pierce has been appointed director of the bureau of child hygiene of the department of health of Syracuse, succeeding Dr. George M. Retan, resigned.

Chiropodists Cannot Call Themselves Doctors.—The board of regents of the state of New York has issued regulations regarding the use of the title "Doctor" by chiropodists or podiatrists. The board holds that the use of "Doctor," or any abbreviation thereof, either with or without the term chiropodist or podiatrist—unless by a person legally licensed to practice medicine—shall constitute fraud or deceit. The board ruled also that it will be fraudulent to use the term "foot specialist," "surgeon," "pedic surgeon," "orthopedic surgeon" or "orthopedic specialist" by any one except a person legally licensed to practice medicine in the state of New York. Furthermore, any chiropodist or podiatrist—unless he is a physician licensed to practice medicine—who, in his advertisements, implies that he treats all diseases, ailments or abnormal conditions of the foot, will be guilty of fraud or deceit.

Bills Introduced.—Senate bill 348 provides for reasonable fees of a physician for examining persons charged with operating a motor vehicle while intoxicated, and makes such fees a town charge. Senate bill 382 extends the workmen's compensation law to cover all employments in which two or more persons are engaged. Senate bill 98 would amend the public health law to provide that children whose parents object shall not be subject to vaccination. House bill 639 provides that claim for medical treatment under the workmen's compensation act shall not be valid against an employer unless the physician furnishes the employer within one year a report of such injury. House bill 656 would permit physicians to use an instrument for the contraceptive treatment of married persons. House bill 666 provides that a medical report shall accompany notice of claim in case of motor vehicle injuries. House bill 676 amends the health law so as to regulate the practice of bandagery. House bill 677 provides that a subpena must be served at least five days before the day fixed for the production of hospital records in court.

New York City

Gift to Cancer Fund.—Mr. R. Fulton Cutting has pledged $250,000 toward the $1,000,000 endowment fund of the American Society for the Control of Cancer, provided the remainder is subscribed by October 1. The gift is to be a memorial to Mr. Cutting's wife.

Mental Hygiene Speakers Bureau.—The State Charities Aid Association is organizing an informal speakers bureau to meet the demand for speakers on mental hygiene, and has sent letters to state hospitals and state schools requesting the superintendent to designate members of the staff who could be called on occasionally for lectures at teachers' meetings, parent association meetings and women's clubs. Requests for speakers should be sent to the Committee on Mental Hygiene, 105 East Twenty-Second Street.

Society News.—At the stated meeting of the New York Academy of Medicine, February 17, there will be a symposium on "Practical Aspects of Psychiatry"; Dr. C. Macfie Campbell, professor of psychiatry, Harvard University Medical School, Boston, will speak on "Some Practical Fields for Mental Hygiene"; Dr. Thomas W. Salmon, professor of psychiatry, Columbia University College of Physicians and Surgeons, "The Place of Psychiatry in General Medical Practice," and Dr. Marion Kenworthy, director, Institute for Child Guidance, "Preventive Psychiatry in Childhood."——Physicians from cities at a distance from New York have expressed their desire to participate in the physicians' art exhibit to be held at the academy of medicine, March 1-15.

Personal.—Michael Heidelberger, for a number of years connected with the Rockefeller Institute for Medical Research, has resigned to continue work as director of the chemical laboratory at Mount Sinai Hospital; the staff of the Rockefeller Institute gave a dinner in honor of Dr. Heidelberger, January 28.——Dr. James Herbert Lawson was elected commander of the New York Caduceus Post of the American Legion for 1927. Brig.-Gen. Frank R. Keefer, U. S. Army, assistant surgeon general, was presented a set of silver stars at the annual banquet of the Caduceus Post of the American Legion, January 29.——Dr. Alexander H. Schmitt has been reelected president of the medical board of Misericordia Hospital.——Dr. John E. Welch has been elected president of the Riverside Practitioners Society.——Dr. L. Howard Moss, Richmond Hill, has been elected president of the Associated Physicians of Long Island.

Hospital News.—The following physicians have resigned from the staff of the Holy Family Hospital, Brooklyn, it is reported: Drs. William Pfeiffer, Joseph McGoldrick, George A. Sheehan, Richard A. Rendich and Sylvester R. Leahy.——The new five story wing of St. Marks Hospital on East Eleventh Street was occupied, January 18. The old building will be used for private rooms and offices.——Greenpoint Hospital, Brooklyn, is preparing to build a new clinic and a nurses' home on the block facing its present building.——

Two performances of "Captain Applejack" will be given, February 27, at the Mansfield Theater, for the benefit of the Hospital for Ruptured and Crippled; the players are a group of West Point Military Academy officers and their wives.——A campaign to raise $1,000,000 with which to enlarge St. John's Hospital, Long Island City, is under way. ——The Broad Street Hospital is to be enlarged to a capacity of 700 beds and its work increased to make it a health center for lower New York. Dr. A. J. Barker Savage, former superintendent, will become executive director of the enlarged institution, succeeding Dr. George D. Stewart.

NORTH CAROLINA

Society News.—Dr. Louis Dienes, director, Von Ruck Memorial Laboratories, Asheville, addressed the medical staff of the U. S. Veterans' Hospital, Oteen, recently, on "Research Problems in Tuberculosis."

Bills Introduced.—Senate bill 22 regulates the medical examination required for insurance application. Senate bill 227 and house bill 180 would require medical examination for all contracts for life insurance in excess of $5,000.

Senate Committee Kills Proposed Appeal.—A state senate committee, a few days ago, killed a proposed bill which aimed to give physicians whose licenses have been revoked the right of appeal from the state board of medical examiners to the superior courts of the state. The bill did not secure a single favorable vote in the committee; it was opposed by representatives of the state board of medical examiners and the state board of health.

NORTH DAKOTA

Bills Introduced.—House bill 110 repeals generally the laws relating to intoxicating liquor. Senate bill 136 provides for the sterilization of feebleminded, insane and epileptic persons, habitual criminals and others who may be inmates of state institutions.

Personal.—Dr. William F. Sihler has been reelected president of the Town and Country Club of Devils Lake.——George A. Talbert, Ph.D., of the physiology department of the University of North Dakota, has been granted $300 for the purpose of extending a study of the common constituents of the urine, sweat and blood.

OHIO

Bills Introduced.—House bills 88, 89 and 90 would regulate the use of expert witnesses in civil cases, and in criminal cases in which the sanity of the accused is involved.

Society News.—Among others, Dr. Alonzo B. Brower, Dayton, addressed the Darke County Medical Society, recently, on "Diagnosis and Medical Treatment of Gastric and Duodenal Ulcers."——The Montgomery County Medical Society held a symposium, Dec. 3, 1926, on tonsil infections; the speakers were Drs. Foy C. Payne, Clyde C. Payne and Howard V. Dutrow.——Dr. Charles P. Sellers, Zanesville, has been elected president of the Muskingum County Academy of Medicine.——Dr. Elliott C. Cutler, professor of surgery, Western Reserve University School of Medicine, Cleveland, addressed the Columbus Academy of Medicine, Dec. 13, 1926, on "Surgery of the Heart."——The Academy of Medicine of Toledo and Lucas County celebrated the twenty-fifth anniversary of "medical consolidation in Toledo," the birth of the academy of medicine, the first Friday in February. Dr. John F. Erdmann was the guest of honor.——Dr. Paul M. Holmes recently presented the academy with a treatise on "Puerperal Fever" by Dr. John Armstrong, published in 1823.——The American College of Physicians will hold its eleventh annual clinical session at Cleveland, February 21-25.——Dr. Roger G. Perkins, professor of hygiene and preventive medicine, Western Reserve University School of Medicine, Cleveland, addressed the Summit County Medical Society, Akron, February 1, on "Present Knowledge of the Etiology and Prevention of Scarlet Fever."

OREGON

Bills Introduced.—Senate bill 73 regulates the practice and teaching of cosmetic therapy and creates a board of cosmetic therapy examiners. House bill 151 provides that the state or its subdivisions when engaged in a hazardous occupation shall not have the right to reject the provisions of the workmen's compensation act. Senate joint resolution 9 provides for a committee to study narcotic treatment. House bill 475 repeals the alcoholic liquor act.

PENNSYLVANIA

Health Officer Appointed.—Dr. James R. Smith has been appointed city health officer of Erie to succeed the late Dr. John W. Wright.

Bill Introduced.—House bill 510 would permit cities, boroughs and townships to cooperate with counties in the administration and enforcement of health laws.

Society News.—Dr. Carson Coover, Harrisburg, has been elected president of the Dauphin County Medical Society; Dr. Edwin A. Nicodemus, retiring president, addressed the society, January 4, on "The Liver and Bile Duct."——The "Medical Club" will give a testimonial dinner instead of the regular meeting of the Lancaster City and County Medical Society, February 16, at the Hotel Brunswick, Lancaster, in honor of the new state secretary of health, Dr. Theodore B. Appel; Dr. Charles Howard Witmer, president of the "Medical Club," will act as toastmaster.——Dr. Dale E. Cary has been elected president of the Lancaster City and County Medical Society.——Dr. Alexander Randall, assistant professor of surgery, and in charge of urology, University of Pennsylvania School of Medicine, addressed the Berks County Medical Society, February 8, on "Tuberculosis of the Kidney."

Philadelphia

Hospital News.—The Pennsylvania Hospital is seeking $3,500,000 for a building program to include a new maternity department, nurses' training school and home and a new institute for mental and nervous diseases. The Lying-In Hospital at Eleventh and Cherry streets will be sold.

Personal.—Dr. William C. Hunsicker has been elected state senator from the third district of Philadelphia.——The governor has reappointed Dr. William G. Turnbull deputy secretary of health.——Dr. Glenn S. Everts has been appointed medical secretary of the Philadelphia Health Council and Tuberculosis Committee to succeed Dr. William J. McConnell, who has become medical director of the Philadelphia plant of the General Electric Company.

SOUTH CAROLINA

Bill Introduced.—Senate bill 154 provides that information received by physicians and surgeons from patients shall not be disclosed without the consent of the patient.

Society News.—The Hampton County Medical Society has been reorganized; Dr. Marion L. Peeples, Jr., Garrett, is the secretary.——Lexington, Edgefield and Saluda counties have arranged for a tricounty society; Dr. Washington P. Timmerman is the president of the society.——The state medical society will meet at Anderson, April 19-21, under the presidency of Dr. George H. Bunch, Columbia.

SOUTH DAKOTA

Bills Introduced.—Senate bill 57 would authorize counties to establish and maintain county hospitals. House bill 64 provides that a health certificate shall be a prerequisite to obtaining a marriage license.

Physicians in the Legislature.—The following physicians are members of the South Dakota legislature: Wellington J. Maytum, Alexandria, senator; James C. Ash, Garden City; August E. Bostrom, DeSmet; August W. Pearson, Peever, representatives.

TENNESSEE

Bill Introduced.—House bill 394 would create a division of tuberculosis control.

Society News.—Dr. George R. Livermore has been elected president of the Memphis and Shelby County Medical Society for 1927.——Dr. Jerome L. Morgan has been elected president of the Memphis Urological Society.——The Southern Interurban Clinical Club of Internists held its fifteenth annual meeting in Nashville, January 7-8, as the guest of the Vanderbilt University Medical School. The program was entirely clinical. The president of the club is Dr. Isaac I. Lemann, New Orleans.

New Health Officer for Nashville.—Mayor Howse has announced the appointment of Dr. John Overton as health officer of Nashville, to succeed the late Dr. William E. Hibbett. Dr. Overton has been the assistant health officer for two years. He is a graduate of Vanderbilt Medical College, where, for a number of years, he was connected with the department of gynecology. Dr. Overton was formerly physician at the state prison and in the service of the government at Manila and Shanghai.

TEXAS

Bills Introduced.—Senate bill 260 amends the medical practice act, so that it will not affect the practice of the religious tenets of any church. House bill 377 would, ten days after intoxicating liquor had been prescribed, make it unlawful to transport a flask or container which had contained such liquor, whether empty or not.

Legislators Arrested—Charge Graft on Optometrists' Bill.—Representatives F. A. Dale of Bonham and H. H. Moore, Cooper, were arrested by state rangers, February 2, it is reported, and released the following day on bonds of $2,000 each, under a charge of accepting a bribe in the interest of a proposed measure for licensing optometrists. The measure proposed by Representative Moore would tax resident optometrists $50, the same fee as is now charged for the licensing of itinerant optometrists. A number of marked banknotes were said to have been taken from Dale as he entered the hotel where Moore was living. A later report states that the house voted by an overwhelming majority to expel Dale and Moore, the former vote being 133 to 4, the latter, 119 to 15, and both seats were declared vacant. The investigating committee found the charges sufficient, it is stated, to mete out "the highest punishment of the house."

UTAH

Bills Introduced.—House bills 41, 42 and 43 relate to the prescribing, selling and labeling of poisons and narcotic drugs. Senate bill 51 would provide for the inspection of the business of medical practitioners, dentists, druggists and others.

VERMONT

Bill Introduced.—House bill 70 relates to the appropriations for resident physicians and nurses.

VIRGINIA

Health at Norfolk.—Telegraphic returns to the department of commerce from sixty-seven cities with a total population of about 30 million, for the week ending January 29, indicates that the lowest mortality rate (7) was for Norfolk, and that the rate for the group of cities as a whole was 13.2. The mortality rate for Norfolk for the corresponding week last year was 12, and for the group of cities, 14.2.

Personal.—Dr. Fred J. Wampler has been appointed by the state board of health to take charge of the Accomack County health unit, succeeding Dr. Robert P. Cooke, resigned. Dr. Wampler has been in China for the past fourteen years as a medical missionary.——Prof. Albert H. Tuttle, for twenty-five years head of the School of Biology of the University of Virginia, died recently at Berkeley, Calif., aged 82.

WASHINGTON

Personal.—Dr. James M. Odell, Spokane, has been appointed assistant medical director of Mountain View tuberculosis sanatorium, Lake View.

Hospital Burned.—The Valley Hospital, Puyallup, was destroyed by fire, January 11; a nurse and a cook lost their lives. The hospital was built about ten years ago as a community enterprise. The building and its destroyed contents were valued at about $20,000.

Society News.—Dr. Mitchell Langworthy has been elected president of the Spokane Medical Society; Dr. Pius A. Rohrer recently addressed the society on "Renal Tuberculosis."——Dr. John F. Christensen has been elected president and Dr. James A. Darby secretary of the Cowlitz County Medical Society.

Bills Introduced.—Senate bill 11 regulates the defense of insanity. House bill 121 prescribes the educational qualifications of applicants for licenses to practice the healing arts. House bill 150 prescribes the procedure and conditions for admission or retention in state hospitals for the insane. House bill 213 defines and regulates the practice of sanipractic and establishes a board of sanipractic examiners.

WISCONSIN

Bill Introduced.—Assembly bill 68 amends certain sections of the medical practice act relating to the revocation of licenses.

Society Approves Visiting Nurses' Orders.—Five representatives appointed by the Medical Society of Milwaukee County have approved the standing orders published by the Visiting Nurse Association of Milwaukee. Among the orders are that the care of a patient be not continued unless a physician is in charge of the case, and physicians are requested to leave written orders in the home for the nurse, verbal orders not being carried out except when given directly to the field nurse or supervisor by the physician. Each patient is expected to pay the cost of the visiting nurse unless unable to pay or unless he is an employee and policyholder of certain industrial firms and insurance companies that have contracted for nursing care.

PHILIPPINE ISLANDS

Annual Medical Meeting.—The twenty-fourth annual meeting of the Philippine Islands Medical Association was held at the Philippine General Hospital, Manila, Dec. 8-11, 1926, under the presidency of Dr. Carmelo M. Reyes. The constituent societies of the association are the Iloilo Medical Society, the Zamboanga Medical Society, the Sorsogon Medical Society, the Nueva Ecija Medical Society, the Culion Medical Society and the Manila Medical Society. The president gave a reception at his home, 1227 Lealtad, Thursday evening. A large number of scientific papers were read before the sections. Some of the subjects were the rate of growth of the population of the Philippine Islands; heights and weights of Philippine children; observation on the basal metabolism in Filipinos; tumors of the pituitary gland; study of outbreak of cholera in a rural district; age incidence of cancer among Filipinos, and arterial diseases in the Philippines. Dr. Eugenio Hernando was elected president of the association for 1927; Drs. Lamberto Leiva and Jose S. Hilario, vice presidents; Dr. Antonio S. Fernando, secretary-treasurer, and Dr. Carmelo M. Reyes, retiring president, delegate to the American Medical Association.

GENERAL

Distribution of Health Information.—The U. S. Public Health Service distributed 807,228 separate pieces of health literature during 1926. This does not include reprints or articles issued prior to last year, of which a large number were sent out during 1926. The public health service sent out 9,650 copies weekly of *Public Health Reports* to health officers and sanitarians, also a publication called *Venereal Disease Information,* which has a paid subscription list of more than 10,000.

House Committee Favors McGee Bill.—The committee on naval affairs of the House of Representatives has made a favorable report on the bill introduced by Congressman McGee of Pennsylvania, which permits any person discharged from the U. S. Navy or Marine Corps, who has developed tuberculosis while in the naval service, to receive free hospitalization for such disease in any government hospital designated for the treatment of tuberculosis. The proposed legislation is similar in kind to existing federal statutes which permit men who were in the military or naval service during the World War period to receive free treatment for tuberculosis at government hospitals. McGee's bill also grants this privilege to men who were in the navy or marine corps subsequent to the war period.

House Committee Discards Medicinal Liquor Bills.—The House Ways and Means Committee discarded the Andrews Medicinal Liquor Bill and the Hull bill, February 2, and named a subcommittee to draft a new bill which would provide the treasury department with authority to concentrate the liquor supply now on hand and to issue permits to a limited number of distilleries to manufacture medicinal whisky. The Andrews bill, rejected by a vote of 16 to 8, would have created a corporation to purchase the existing stocks of whisky from private owners and empowered the corporation to manufacture replenishments as needed. The Hull bill would have created a federal corporation to contract with one or more but not to exceed six distilleries to produce whisky as needed, and to control the distribution of whisky directly through the retail druggists and fix the retail price.

American College of Physicians.—The eleventh annual clinical session of the American College of Physicians will be at Cleveland, February 21-25, under the presidency of Dr. Alfred Stengel, Philadelphia. Western Reserve University and the Cleveland hospitals will cooperate in presenting a program which will be of interest to internists, pediatricians, pathologists, roentgenologists, dermatologists, psychiatrists and neurologists, and which will constitute, in fact, a week of postgraduate instruction. There will be clinics and demonstrations at the hospitals and laboratories of the

university in the morning, and in the afternoons, papers will be read by members from various parts of the United States and Canada. During the evenings, there will be formal addresses by distinguished guests from abroad, and by the president and other representatives of the college. All qualified physicians and laboratory workers are invited to attend the sessions.

International Society for Crippled Children.—The sixth annual convention of this society will meet in Cincinnati, February 16-17, under the presidency of Edgar F. Allen, Elyria, Ohio. The headquarters will be at the Hotel Sinton. The program will be directed toward coordination of all organizations dealing with crippled children throughout North America. Part of the program will be broadcast Wednesday evening over Station WLW. The entertainment following the banquet will be provided by pupils of the Cincinnati School for Crippled Children. The societies of England and Canada and those of twenty-five states of this country are affiliated with the international organization. Among the speakers of this meeting will be Dr. Frank D. Dickson, Kansas City; R. M. Little, Albany, N. Y.; Mrs. A. H. Reeve, Philadelphia; Paul P. Harris, Chicago, founder of the Rotary Clubs; Prof. H. E. Simmons, Akron, Ohio, and John W. Abercrombie, Montgomery, Ala.

National Malaria Committee.—At the recent meeting of the National Malaria Committee, Atlanta, Ga., Dr. Leland O. Howard, chief, bureau of entomology, U. S. Department of Agriculture, Washington, D. C., was elected honorary chairman; Dr. Victor G. Heiser, New York, chairman; Dr. Felix J. Underwood, state health officer, Mississippi, vice chairman, and Dr. L. D. Fricks, U. S. Public Health Service, secretary. It was decided to appoint a committee to raise funds to carry on research work and to standardize the procedure of malaria surveys. The retiring chairman, Dr. James A. Hayne, gave an address on "Progress in Control of Malaria in the United States"; Dr. Hugh S. Cumming, U. S. Public Health Service, "Malaria as a Health Problem"; Lieut.-Col. Joseph F. Siler, "Malaria Control in the U. S. Army" (lantern slides); Frederick L. Hoffman, Wellesley Hills, Mass., "The Malaria Problem in Mexico"; M. A. Barber, W. H. W. Komp and Theodore B. Hayne, of the U. S. Public Health Service, "Methods of Estimating the Amount of Malaria in Regions of Low Endemicity," and Dr. Wilson G. Smillie, New York, "Further Studies of the Impounded Area of Gantt, Ala." (lantern slides).

Fund for Investigation of Endocarditis.—The Harmsworth Memorial Research Fund of London, England, announces that it is prepared to make grants to individual investigators in any parts of the world in connection with the investigation of and research into the problem of ulcerative endocarditis. The fund exceeds £25,000 and is administered by the board of six trustees with the object of collecting all known facts relative to the infective part of the disease and of making a close study of all cases of ulcerative endocarditis that are now or in the immediate future will be under observation and treatment. The trustees hope that the fund will receive the assistance of physicians and laboratory workers throughout the world. A scientific committee, comprising Sir Thomas J. Horder, Sir Thomas Lewis, Sir Edwin Cooper Perry and Dr. Mervyn H. Gordon will make recommendations to the trustees for grants to investigators; these will include subsidies to workers whose present efforts are likely to yield results of importance, also to others to whom special lines of research will be suggested, and grants to those who contribute statistics and results of observation and research. Empowered to disburse moneys to any worker whose contribution is exceptional, the trustees have the option of closing the fund altogether by making a grant of all of the remaining capital at any time to a worker whose contribution shall be judged to have finally disposed of the obscurity overlying the knowledge of ulcerative carditis. Data from investigators in any country will be welcomed by the secretary, Dr. Philip Seymour Price, 41 Sloane Gardens, London, S. W. 1., England. A report of results of investigation will be issued annually or more often if useful.

Deaths in Other Countries

Karl Franz, professor of obstetrics at Berlin, aged 56.—**Theodor Wyder,** professor of obstetrics and gynecology at Zurich for the last thirty-two years.—**George Perthes,** director, surgical clinic of the University of Tübingen, Germany.—**Jacob Singer,** emeritus professor of internal medicine, German University of Prague, aged 73.—**Leopold Spiegel,** professor of chemistry, University of Berlin, discoverer of yohimbin, aged 62.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Jan. 22, 1927.

Preservatives in Food: New Regulations

New responsibilities are placed on the manufacturers and purveyors of foodstuffs by the regulations that come into force in 1927. For the purpose of the regulations, "preservative" means any substance capable of inhibiting, retarding or arresting the process of fermentation, acidification or other decomposition of food, or of masking any of the evidences of putrefaction; but does not include sodium chloride, sodium or potassium nitrate, sugars, acetic acid or vinegar, glycerin, alcohol or potable spirits, herbs, hop extract, spices and essential oils used for flavoring purposes, or any substance added to food by the process of curing known as smoking. Cream must not contain any "thickening substance" (which means sucrate of lime, gelatin, starch paste, or any other substance that does not include cane or beet sugar). Preservative and coloring matters which are specified in a schedule are forbidden except as shown in the following table. This table gives the articles of food that may contain a preservative and the nature and proportion of preservative in each case. The articles specified in the first column may contain the preservative specified in the second column in proportions not exceeding those given.

Food	Preservative	Parts per Million
1. Sausages and sausage meat containing raw meat, cereals and condiments	Sulphur dioxide	450
2. Fruit and fruit pulp (not dried) for conversion into jam or crystalized glacé or cured fruit as defined in items 6 and 7:		
(*a*) Cherries	Sulphur dioxide	3,000
(*b*) Strawberries and raspberries	Sulphur dioxide	2,000
(*c*) Other fruit	Sulphur dioxide	1,500
3. Dried fruit:		
(*a*) Apricots, peaches, nectarines, apples and pears	Sulphur dioxide	2,000
(*b*) Raisins and sultanas	Sulphur dioxide	750
4. Unfermented grape juice and nonalcoholic wine made from such grape juice if labeled in accordance with the rules contained in the second schedule to these regulations	Benzoic acid	2,000
5. Other nonalcoholic wines, cordials and fruit juices, sweetened or unsweetened	Either sulphur dioxide or benzoic acid	350 or 600
6. Jam (including marmalade and fruit jelly prepared in the way in which jam is prepared)	Sulphur dioxide	40
7. Crystalized glacé or cured fruit (including candied peel)	Sulphur dioxide	100
7a. Fruit and fruit pulp not otherwise specified in this schedule	Sulphur dioxide	350
8. Sugar (including solid glucose)	Sulphur dioxide	70
9. Corn syrup (liquid glucose)	Sulphur dioxide	450
10. Gelatin	Sulphur dioxide	1,000
11. Beer	Sulphur dioxide	70
12. Cider	Sulphur dioxide	200
13. Alcoholic wines	Sulphur dioxide	450
14. Sweetened mineral waters	Either sulphur dioxide or benzoic acid	70 or 120
15. Brewed ginger beer	Benzoic acid	120
16. Coffee extract	Benzoic acid	450
17. Pickles and sauces made from fruit or vegetables	Benzoic acid	250

The Beginning of Medical Journalism

Sir Squire Sprigge, editor of the *Lancet,* in a lecture on "Medical Literature and Journalism" at the Royal Institution, traced the development of journalism from the time of the news letters and corantos of the seventeenth century. The authors of the corantos, he said, were of various sorts, and while doubtless some of them, especially those relying on foreign sources for public information, were men of letters—they were, indeed, the old intelligencers—others were reporting journalists responsible to the demands of the public for

sensationalism. The corantos received their inspiration from Holland, and similarly the first medical journal derived its inspiration from a continental source in the *Foreign Medical Review*. He referred to the journalistic activity at the end of the eighteenth century, after naming a number of journals which preceded the *Lancet*. The *Lancet*, founded in 1823 by Thomas Wakley, struck an entirely new note. It was a dueling ground for a series of encounters between the editor, who soon acquired powerful supporters, and the members of the privileged classes in medicine. In the first ten years of the *Lancet*, the editor was engaged in ten libel actions. The violent billingsgate used in the *Lancet* and by its critics in those days was, he believed, actually useful, for the protagonists in the fundamental quarreling between reforming ideas and vested interests were thus able to "blow off steam." Alongside the personal quarreling and a series of libel actions, there was always the carrying through of constructive work for the advancement of the medical profession.

Reproducing the Unfit

At the annual conference of the Educational Association, Prof. E. W. McBride gave a lecture before the Eugenics Society on "The Nature and Origin of Racial Differences." He referred to the difficulty of finding employment for all the growing population of these islands, and the small proportion of the increase drained off by emigration. The state, assuming an ever more grandmotherly point of view, took a larger and larger responsibility for looking after and keeping comfortable people who had mental and physical defects. Many had been appalled at the way in which, like a snowball, the cost was mounting up and weighing heavily on the rest of the community. The defects and weaknesses were handed on to other generations. Yet if they could deal with these matters, they would only have touched the fringe of the question. Behind all was the question of racial differences, to which few in England had yet waked up, but which, in some other parts of the world, was of impressive and vital importance. Mental and other defects were almost certainly due to germ weakening, and we were beginning to see a little light on the causes of it. There was a hopeful future, if germ-weakened people could be got into surroundings that were more healthful and were forced to strive for themselves, as there was then a tendency for germ weakness to pass off. It was instructive that dovecote pigeons that had escaped maintained themselves in our London squares, and that in two out of every five cases they had reverted to the ancestral rock pigeon type. This was not due to recrossing with the wild rock pigeon, because that bird was almost extinct. In the New Forest, pigs that had run wild had reacquired the long snout with a full development of teeth, and showed great activity. If we could transport certain parts of our population to Australia and leave them to their own resources, those who survived would in two or three generations redevelop into quite respectable people. Dealing with the chief races comprised in the make-up of the European population and their different characteristics, MacBride suggested that their qualities were in the last resort the outcome of reaction to environment. He urged that before long we should have to face the question of putting a check on the reproduction of the unsatisfactory elements in the community. A civilization was not necessarily immortal. If we went on playing the fool, encouraging the growth of the less fit part of the population and penalizing the more enterprising, our civilization would eventually go under, as the Roman Empire did.

Infectious Disease in School: Isolation Versus Dispersal

In previous letters, the controversy on the policy to be adopted in schools where cases of acute poliomyelitis occurred has been described. One of the protagonists, Lord Dawson (physician to the London Hospital) in an article in the *Evening Standard* says that in individual homes there cannot be, except in rare instances, effective isolation. A boy who is sent home may be a carrier. Isolation, therefore, would be necessary not only for himself but for those who look after him. That is impossible. Isolation in homes must be ineffective, and as a result carriers are widely dispersed, and the seeds of future epidemics may be laid. Without doubt, keeping the boys at school, even if isolation cannot be watertight, offers more protection to the community than dispersal. But would the interests of the boys themselves be equally well served? In Lord Dawson's opinion, the answer is in the affirmative, but admittedly that is a medical question which needs careful consideration by medical advisers. If the school life, for the time being, was modified, the protection to the boys and the control of the disease would be increased; and although that modification might require disturbance of routine and initiative and organization on the part of the staff, that would be better for the boys than sending them home to weeks of idleness. If one was to draw conclusions from the limited experiences afforded by the affected schools, Broadstairs, Uppingham and Woolwich, it might be urged that the results were equally good in all of them as far as the boys' health was concerned. But whereas at Broadstairs and Woolwich (where the schools were isolated) the interests of the community were served and the education and discipline of school life were not interrupted, at Uppingham (where the school was dispersed) the reverse was the case.

PARIS

(From Our Regular Correspondent)

Jan. 12, 1927.

The Centenary of the Société Anatomique

The Société anatomique, founded in 1826 by Cruveilhier, has recently celebrated its first centenary. Professor Roussy, the chairman, recounted that Cruveilhier, the son of a physician of Limoges, forced by his father to take up the study of medicine against his will, had a horror of dissection and almost fainted when the first cadaver was placed before him. He fled from the dissecting room and soon entered a Catholic seminary with the avowed intention of becoming a priest. But his father compelled him to return to his medical studies, and in a short time he had reached the front ranks. After graduation, he returned to Limoges, but did not succeed in securing the post of chief hospital surgeon. He became for a time professor of operative medicine at the Faculté de médecine de Montpellier, and was then called to Paris by his uncle the abbé Fraysinouss, who had become minister of public instruction and who immediately appointed him professor of anatomy, without his name having been proposed by the council of the university. This irregular appointment was ungraciously received by the professors and pupils, and the first courses given by Cruveilhier in 1825 became the occasion for hostile demonstrations, which however subsided gradually when it was found that he was really worthy of the post. He reawakened the interest in France for anatomic studies, and published works that long remained classic. The presidents of the Société anatomique have been, successively, Charcot, Cornil, Letulle, and the present incumbent, Agrégé Professor Brault. In commemoration of the occasion, the society chose the subject the pathologic anatomy of the pulmonary tubercle. Professor Meyenburg of Zurich presented the German conceptions on the subject. Bezançon, Sergent and Léon Bernard gave the French views, and pointed out that the two conceptions agree in the main. Vaudremer described, on the basis of his long researches, the variable aspects of the tubercle bacillus, which gave a new out-

look to the problem. Ameuille, Armand-Delille and Vibert dealt with mediastinal and peribronchial adenopathies, and pointed out their relation to tuberculosis, which is not so common as is supposed. These adenopathies, though common in infantile glandular tuberculosis, are seldom found in tuberculous adults.

Vaccinotherapy in Adnexitis

Dr. Daléas recently discussed before the Société de médecine et de chirurgie de Toulouse a series of twenty cases of adnexitis in which vaccine therapy gave remarkable results. It helped to bring about abatement of the subjective symptoms, while the organs regained a normal anatomic aspect. Two patients who had received vaccine treatment were able to become pregnant and carried their offspring to term. Daléas thinks it is advisable to choose a vaccine that gives radical reactions. He mentioned the possibility of local reactions, sometimes in the form of a phlegmon at the site of the injection. One observes then an apparent recrudescence of the adnexal pains together with abundant yellowish leukorrhea, followed by a feeling of relief. Tuberculosis is the only contraindication to this method. If there is a collection of pus that is accessible by the vaginal or suprapubic route, it should be incised and drained.

The Paris Institute of Colonial Medicine

The Institute of Colonial Medicine, created in 1902 by Professor Blanchard at the Faculté de médecine de Paris, recently held its annual session, when diplomas were presented to students completing the courses. The institute prepares physicians for work in the colonies. Last year fifty-two pupils were enrolled: sixteen Frenchmen and thirty-six foreigners. Since its foundation, the institute has bestowed 628 diplomas: 304 to Frenchmen and 324 to foreigners. The two other institutes for colonial medicine, located in Marseilles and Bordeaux, have a higher percentage of Frenchmen, since colonial physicians are more frequently recruited in those two large maritime cities than in Paris. The colonial medical service is not in good financial shape, for the salaries paid for the strenuous and dangerous work are inadequate, and incommensurate with the present cost of living. But the value of the instruction given at these institutes is attested by the large number of foreign students.

The Dissemination of Leprosy by Insects

Addressing the Société de pathologie exotique, de Mello and Cabrol have given the results of their researches at the leprosarium in Mapuça. Flies and other insects have been caught about the beds of leprous persons, and, in 50 per cent of the cases, acid-fast bacilli resembling *Bacillus leprae* were found within their bodies. It was, of course, impossible to obtain the conclusive proof derivable from the inoculation of man. Possibly flies and insects contribute to the spread of the leprosy bacillus from man to man. However, de Mello and Cabrol found on lepers themselves flies and other insects that were free from bacilli. During the discussion, M. Marcel Larger recalled that, about the middle of the last century, Daniel de Beauperthuy, a French physician established in Venezuela, had pointed out that the transmission of leprosy was accomplished probably through the mediation of flies and other insects.

An Incident Bearing on Social Insurance

There is wide diversity of opinion among the medical societies concerning social insurance. One group refuses to cooperate in the proposed plans of the government, while the other group accepts what it considers to be inevitable and seeks an arrangement by which the rights of the attending physician will be preserved. The socialists, most of whom pay little if any income tax, are not worried over the cost of the project, and demand the passage of the social insurance bill. A recent event shows the state of mind that prevails in certain quarters. A physician of Alsace, in the service of the health insurance societies, was convicted of fraud. He had conspired with the workmen whom he attended, demanding of the administration the price of calls that he had never made and sharing the gains with the workmen, or prescribing costly drugs that were not needed, the resale of which added still further to his ill-gotten store. The physician in question was suspended from his duties for three months. The workmen's union demanded his immediate reinstatement. The administrator of the health insurance society refused absolutely to comply with the demand. Later, a bomb explosion demolished the whole front of his house.

ITALY

(From Our Regular Correspondent)

Florence, Nov. 30, 1926.

The Vicentini Prize

In memory of Professor Vicentini, recently deceased, the royal commission for the province of Chieti has established for the year 1927 a prize of 2,000 liras in the field of bacteriology. The award will be made by the Società italiana di oftalmologia. The subject to be treated is "Bacteria of the Normal Eye and the Studies of Vicentini."

First Session of the Società Italiana di Studi Scientifici sulla Tuberculosi

The Società italiana di studi scientifici sulla tuberculosi has held its first session in Milan under the chairmanship of Professor Maragliano, with a large attendance from all parts of Italy. Senator Maragliano, in the opening address, stated that the new society was only a branch of the Italian federation for combating tuberculosis; but, within the federation, the new society had assumed chiefly the task of organizing the social crusade against tuberculosis. The speaker called special attention to preventive vaccination against tuberculosis, the idea of which was developed in Italy a quarter of a century ago and which is now becoming widely accepted. Beginning its work with a study of the subject of pneumothorax, the society plans to investigate, in succession, the problems that affect the clinic for tuberculous diseases, and to give to practicing physicians reliable guidance in the field of tuberculosis.

THERAPEUTIC PNEUMOTHORAX IN THE TREATMENT OF PULMONARY TUBERCULOSIS

Prof. V. De Bonis of Naples explained the mechanism of pneumothorax as advocated by Forlanini. The mechanical factors associated with collapse of the lung consist particularly in resting of the diseased organ, evacuation from the cavity of disease products, and elimination of air emboli. The biologic factors are modifications of the circulation (blood and lymph), which produce a diminution of the toxemic condition and a reawakening of the forces of specific immunity. Artificial pneumothorax represents today, next to hygienic treatment, the greatest therapeutic aid that we possess in the treatment of pulmonary tuberculosis. But the cases in which it can be applied are limited in number. It should always be applied early.

TECHNIC OF PNEUMOTHORAX

Prof. U. Carpi of Milan dealt with the technic, symptomatology and the conduct of the treatment. He stated that the endeavor is to penetrate the cavity of the pleura without injuring the lung, and to introduce there a harmless gas in sufficient quantity to immobilize the lung. The gas originally recommended by Forlanini was nitrogen. At present, filtered air is more commonly employed. Some authors advocate the use of oxygen. During the application of the treatment

accidents that may occur are pleural shock and gas embolism. Postoperative complications are pleuritis and empyema. To determine the progress of the treatment, roentgenologic and manometric control is advisable. The duration of the treatment varies from one to three years.

THE IMMEDIATE AND REMOTE RESULTS OF PNEUMOTHORAX

The immediate and the remote results of pneumothorax were discussed by Prof. G. Ronzoni of Milan. He stated that, in the cases in which it is possible to apply it, pneumothorax offers the most efficacious therapeutic aid and produces actual results in advanced pulmonary tuberculosis.

Numerous further communications were presented, among which was one by Landolfi of Naples on the early diagnosis of pulmonary tuberculosis by the use of tuberculin. A communication was presented by L. Magliulo on the autodacryoreaction, in which he explained his original method of tuberculin autoreaction, employing the tears of the patient himself in performing skin tests. The author recommends his method particularly in dealing with children in centers where it is difficult to procure material for the Pirquet test.

Proposed Cultivation of the Poppy in Italy

A government commission has been appointed charged with conducting researches on the cultivation of the poppy in Italy. The first trials were made in the botanical garden of the University of Pisa by Prof. Torquato Gigli, who has recently reported the good results that he has secured.

Placing of a Memorial Tablet at the Seat of the Campestral University

In the hall of the communal council of S. Giorgio di Nogaro, which, during the war, served as the Great Hall for the Campestral University, a memorial tablet has recently been unveiled in honor of the physicians who graduated there during the years of the war and subsequently fell in battle. Marshal Cadorna was in attendance at the special ceremonies.

RIO DE JANEIRO

(From Our Regular Correspondent)

Dec. 15, 1926.

Ocular Complications of Smallpox

At the National Academy of Medicine, Dr. G. de Andrade discussed the ophthalmic injuries caused by smallpox. During the present epidemic at Rio, de Andrade has already seen quite a number of cases in the eye service of the General Hospital. Of all acute general infections, none probably is more threatening to vision than smallpox. Before the advent of vaccination this disease alone caused 35 per cent of all blindness, and some early writers even stated that smallpox alone made as many blind persons as all the other conditions put together. All general physicians must understand clearly this danger and watch carefully the patients' eyes in order to institute treatment in time. This is all the more necessary as recent textbooks do not stress this point as former authorities used to do. De Andrade described thoroughly the different manifestations of smallpox, as well as their prevention and treatment.

Filtrable Virus

Dr. A. Fontes described before the Medical and Surgical Society his original studies on filtrable types of the tuberculous virus. Filtrability depends not only on the quality of the filtering material but also on its absorptive and adsorptive powers and the nature of the suspending medium. As regards organisms, it depends not only on their size but their resilience, degree of adhesiveness to the filtrating mass, molecular cohesion and pressure. Some relatively large bacteria, as Esmarch's *Spirillum parvum* and *Micrococcus melitensis* will cross filters which prove impermeable to smaller organisms. The size of the filtered bodies cannot therefore be accurately inferred from their filtrable capacity. The relation to invisibility is also uncertain. At the visible limit, pathogenic and filtrable organisms are found, such as Lipschutz' *Strongyloplasma* and Prowazek's *Chlamydozoa*. Neither are invisibility and size always parallel, as the former also depends on the affinity toward stains or mordants. The limit of microscopic visibility is 0.25 micron. Beyond this, workers resort to the technical trick of making particles luminous against a dark ground. The use of ultraviolet rays permits them to photograph particles as small as 0.12 micron. These invisible agents, barely demonstrable through their photogenic powers, are the so-called filtrable viruses and ultravisible agents. Fontes' studies of the tubercle bacilli led him to the conclusion that the granular form is a biologic phenomenon common to all bacteria. Available data already point out that bacteria seem to have both a visible phase and an invisible one.

Leishmania Infection

Dr. H. Aragão has delivered an address on the outbreak of leishmaniasis or so-called Baurú sore at Aguas Ferreas and Santa Theresa. There is a local abundance of phlebotomus (sandflies). These are most probably the vectors, as the other bloodsucking insects also prevail in other sections and would certainly cause outbreaks in case they transmitted the disease. The mere removal of a patient to an area favored by phlebotomus may prove enough to start an epidemic. At Aguas Ferreas forty cases occurred, and if the matter had not been taken in hand, more cases would certainly have developed. Leishmanias, however, are not common parasites of sandflies. These only become infected when they happen to bite a patient. Among the forty cases, only three belonged to the mucous type, which shows the predominance of the cutaneous type. Because of the close proximity of dwellings, the disease did not confine itself to the lower classes but spread as well to members of the professional and merchant classes. Dr. Aragão inoculated with phlebotomus a number of puppies. One of the animals developed a typical ulcer with parasites. This experience confirms Sergent's results. Adier and Theodor's recent work points in the same direction, and the British India kala-azar commission also corroborated the rôle played by phlebotomus in the transmission of the disease.

Anesthesia of the Nasal Septum

Dr. Souza Mendes described a method of his own for the anesthesia of the nasal septum. Instead of painting the whole mucous membrane with cocaine, he impregnates only the margins, in the transitional points to neighboring structures. This method is called by him imbibition regional anesthesia.

Primary Amyotrophia

Dr. L. Pereira reported two cases of primary amyotrophia observed in Dr. A. Porto's infirmary. The first patient was 30 years old; the muscular atrophy was general and hardly fitted into any of the classic types. The second patient was a lad, aged 17. His disease conformed to Erb's juvenile type. The gait was typical, as the boy stumbled when trying to walk and supported himself on the extreme anterior plantar surface. In neither of the cases was any hereditary factor discovered.

Bilocular Hernia

Dr. C. Leal described a case in a soldier operated in the Army Central Hospital for a strangulated hernia. An ectopic left testis was atrophic and adherent to the obliquus externus. From this point and because of the decreased resistance of the muscular bundles, two different sacs had been formed at different places, both containing omentum. One was inter-

stitial and the other inguinoscrotal, both in the left side. While the soldier suffered from gonorrhea, healing was by first intention.

New Method for Corneal Tattooing

Dr. Lech, Jr., exhibited a patient with a left leukoma tattooed with gold chloride. He described the various steps of this method. The old nankin method entails various disadvantages, contraindications and complications. Gold chloride presents some advantages, especially from an esthetic standpoint, as it permits imitation of the center of the iris. This did not prove feasible with nankin. There is at present a lack of uniformity as to the gold chloride procedure. Lech has begun a study of the various factors involved in order to define the technic. Then any desired shade may be obtained and worry as to postoperative results will cease.

PRAGUE

(From Our Regular Correspondent)

Jan. 2, 1927.

Cost of National Health Work

The state budget for the year 1927 has been approved by parliament. Out of the total budget for the whole country of some 300 million dollars, close to 16 millions is devoted to health purposes scattered through the different items of the budget. This makes an expenditure of more than one dollar per head. Although this is a high per capita rate for the health service, it includes the cost of public hospitals and the salaries of state and local health officers. Pensions and social insurance are not included in these sums.

Medical Events of 1926

The most important medical event of last year was the putting into effect of the law dealing with the social insurance of all working people. This system has put the different insurance bodies under one central control. Private practice has suffered in that it seems improbable that the demand of the insurance physicians for the introduction of free choice of physicians will be granted. Private practice has suffered another serious blow by the introduction of sickness insurance for all public officials. This was the only class in the country except the peasants which did not belong to the insurance scheme. Insurance regulations provide, in suitable cases, for diagnosis by a specialist, but the treatment recommended must be administered by the general practitioner. This has virtually annihilated the clientele of the specialists and is forcing them into the ranks of the general practitioners. The duty of each patient to pay in cash even a small contribution for each call of the physician, has reduced the tendency of the patient to pretend illness.

Another important event is that the health service has been removed from the direct influence of the organized medical profession. This change, on the whole, is not resented by those who are well informed. As a result of this change the proposed combination of the ministry of health with the ministry of social welfare will be made easier.

Reduction in the number of medical students in Czechoslovakia (not including the foreigners) has been noted. The reason for it is the restriction of private practice through sickness insurance. The Czech Medical Faculty of Prague has lost heavily through the death of the surgeons O. Kukula and R. Jedlicka and of the pharmacologist professor Lhotak. Several resignations from the staff of professors who have reached the age limit have occurred.

The beginning of the service of the state institute of public health during the course of last year belongs also among its important events.

The Czechoslovak Society for the Study of the Child has developed into an important scientific body. The society was founded in 1921 by the late Professor E. Babak of Brno, with the intention of bringing together all those who could contribute to the understanding of the physical and mental growth of the child. Although the bulk of the work in the society remained in the hands of physicians, a great deal was performed through cooperation with sociologists, lawyers, teachers and parents. Naturally enough, the interest of the society centered round the school. A library was founded where literature on all relevant subjects was concentrated. Special courses for teachers were started where modern ideas concerning the management of the child in the school were brought before the audience. A special institute for the study of the child was founded in Brno, which has opened a clinic for vocational guidance. Special studies, such as the condition of the teeth of school children and normal development of the child at different ages, appeared under the auspices of the society. Special courses were given for mothers on the care of infants and of children of preschool age.

International Union of Slavic Physicians

The committee that prepared the draft of the statutes of the International Union of Slavic Physicians met in Prague, December 16. The discussion centered round the question of representation in the union. Finally representation in the various committees according to political units now in existence was accepted as the basis of organization. The purpose of the union was defined in part as follows: The union should serve for the coordination of scientific, professional and public activities of all Slavic physicians. Periodic congresses of all Slavic physicians should be held where professional, scientific and public health topics should be discussed. Representation from other Slavic nations should be sent to national congresses held in the different Slavic countries. The union should also publish an international medical periodical the aim of which should be to convey to the Western medical world the results of scientific achievements in the Slavic countries. The union should also promote the interchange of university professors in the different Slavic countries. The study of Slavic scientific terminology is also mentioned in the program of the union. The formal founding of the union will take place at the congress which will be held in Warsaw in May, 1927, under the auspices of the Polish medical profession. For that congress three topics for discussion were selected: rhinoscleroma among the Slavic nations, vaccination against scarlet fever, and one topic from the field of social hygiene which was not definitely decided on but which probably will deal with the most suitable form of public health organization for a rural unit in Slavic countries.

Council on Social Hygiene.

At the last meeting of the delegates of the council on social hygiene, which is a federation of national public health and social private agencies in Czechoslovakia, it was suggested that the institutions which previously were created by private agencies, such as dispensaries and preventoriums, be subsidized by the system of social insurance in order to avoid expensive duplication. Another point of discussion concerned the building of special houses for the different dispensaries, offices of private agencies and nurseries. Three types of such houses have been worked out for cities of different sizes. The council heard also the report of the committee on the education of the health personnel, which has drawn up a scheme for unification of the training of the health personnel of the country. The committee on health demonstrations has reported on the enlargement of its program, under which three more demonstration areas will be developed in cooperation with the International Health Board of the Rockefeller Foundation.

BERLIN

(From Our Regular Correspondent)

Jan. 15, 1927.

Fundamental Principles of Rescue Work and Transportation of the Sick

The Prussian provincial health council has set up the following fundamental principles whereby duplication of effort in rescue work may be avoided:

I. Systematic Organization: 1. Rescue work and the sick transportation service should be organized according to provinces. 2. For each province a central organization should be formed to be made up of representatives of the central government, the provincial government, the provincial urban association, the provincial association of rural communes, the recognized associations of employers, the workmen's leagues, the federal insurance carriers, private insurance societies, medical organizations, the Red Cross, the fire departments, and other participants in rescue work. The central organization will appoint the executive committee and the administrative officials. Existing central organizations of this nature, when feasible, may be expanded to serve the new purpose. 3. It shall be the duty of the central organization to advance rescue work and the sick transportation service, and to protect these services against accidents during training and during its practical activities (accident insurance), and against claims for damages arising out of the performance of ordinary tasks (liability insurance). 4. Corresponding central organizations to control rescue work and sick transportation service in individual urban and rural communes, or in groups of communes, should be formed. 5. As a board of appeal for rescue work and the sick transportation service, the minister of public welfare should appoint a commissioner to be assisted by a committee to be selected from the participating leagues.

II. Necessary Arrangements: A. On land: 1. Rescue centers. (*a*) In large cities: Rescue centers with constant medical attendance and complete equipment for first aid in accidents and sudden illness, within and without the rescue centers, with store rooms, either independent or in connection with hospitals. (*b*) In middle-sized cities: Rescue centers in connection with existing hospitals, having special local equipment for the rescue centers in the hospital. (*c*) In small towns without hospitals with constant medical personnel: Rescue watches, rescue arrangements of volunteer sanitary crews and of similar organizations, or arrangements at police stations and fire stations, in charge of personnel trained in the sanitary service. (*d*) In villages and rural settlements: Supply of bandaging material and the most essential drugs, in charge of a reliable person who has been trained in the sanitary service and who is practically always available. (*e*) In creating the arrangements mentioned in *a* to *d*, account should first be taken of the existing arrangements of the participating rescue leagues, with a view to bringing them up to standard. 2. Transportation arrangements. In large cities, rescue ambulances should be ready for service at a moment's notice; in the smaller cities, rescue ambulances should be available on as short notice as possible, being controlled by the existing rescue leagues, the fire departments, and the like. If sanitary ambulances are not to be had, autotrucks can easily be made to serve. The communal hospitals should be supplied with auto-ambulances. Not only the large but also the smaller rescue centers should have wheel litters readily available. 3. Training of first-aid personnel: Everywhere there should be collaboration with the existing sanitary crews, with a view to the training of emergency assistants (in plants and factories) and other aides. 4. Notification. In all centers that do not have a medical personnel in constant attendance there should be provisions for securing assistance as promptly as possible. There should be cooperation with the existing sanitary crews for the rendering of aid in public calamities. First aid should be available also on Sundays and holidays. Printed pamphlets, supplied, if possible, with maps, should give information in regard to the location and the respective equipment of existing rescue centers, the addresses of physicians and sanitary personnel, and telephone facilities and road and railway connections. 5. Sign boards: By means of sign boards and posters displayed along the streets, highways, at railway crossings and public places, information should be given in regard to existing rescue centers and particularly as to how they can be reached (telephone). 6. By radio talks, welfare lectures, school announcements and posters, the public should be enlightened in regard to first aid. B. On the water: 1. Supply of rescue equipment (boats, life preservers [rings], posted directions as to rendering first aid to persons rescued from the water), with information as to the nearest rescue centers, at all dangerous points (bridges, water fronts, etc.), while at bath resorts and at public baths there should be constantly a life guard. 2. In schools and in athletic associations there should be more extensive training in methods of rescuing persons from the water and in reviving those who have collapsed.

Growth of Germany's Population During the Next Fifty Years

In volume 316 of "Statistics of the German Reich," the federal bureau of statistics has published computations on the presumable development of the population of Germany in the next fifty years. All prophecies are to be viewed with skepticism, but in the matter of future populations prognoses do not seem unwarranted, since the present population constitutes an exactly definable value as the basis for calculations.

The bureau of statistics assumes three possible modes of development: 1. The annual number of legitimate living births to remain constant for the next fifty years. 2. The legitimate fertility, that is, the number of legitimate births as compared with the number of married women of childbearing age, to remain constant. 3. The number of legitimate living births to diminish by 25 per cent by 1955, and then to remain constant. All the estimates are based on the assumption that the mortality will not vary.

The total population is represented in thousands, as shown in the adjoining tabulation.

Year	First Estimate: Number of Living Births Constant	Second Estimate: Legitimate Fertility Constant	Third Estimate: 25 per Cent Decrease in Legitimate Fertility
1925	62,313	62,313	62,313
1930	64,319	64,482	64,225
1935	66,063	66,802	65,791
1945	68,653	70,523	67,359
1955	70,132	73,029	67,174
1965	70,677	75,184	66,007
1975	70,381	76,904	63,676

According to all three estimates, there will be an increase of population (though varying in amount) up to 1945, after which year important differences begin to manifest themselves. According to the third estimate, the population will decrease after 1945 rather rapidly, and in 1975 will not be much greater than in 1925. The first estimate shows, from 1945 on, a somewhat stationary population, which, however, in 1975 is 8,000,000 above that of 1925, and only according to the second estimate is a further increase of the population after 1975 (when it reaches 76,900,000, or 14,600,000 above the population for 1925) to be anticipated.

The excess of women, which in 1919 reached its apex (1,101 women to 1,000 men, as compared with 1,029 women to 1,000 men in 1910), and which now amounts to 1,074 women to 1,000 men, will, by 1955, be reduced to the normal prewar level.

Marriages

RANDOLPH RAYNOLDS, New Haven, Conn., to Miss Ellen Elizabeth Nelson of Waterbury, Conn., Nov. 25, 1926.

FRANKLIN G. BALCH, JR., Boston, to Dr. India Hunt of Rochester, Minn., at Atlanta, Ga., Sept. 17, 1926.

JAMES P. HUTCHINSON, Media, Pa., to Mrs. Amory Hare Cook of Philadelphia, at New York, January 28.

DE FORREST P. WILLARD, Philadelphia, to Miss Margaretta Miller of Wilmington, Del., Dec. 11, 1926.

ROBERT GEORGE BARCKLEY, Milford, Pa., to Miss Ethel J. R. C. Noyes of New York, January 26.

RAYMOND C. MORSE, Puyallup, Wash., to Miss Bessie Satterthwaite of Olympia, Dec. 29, 1926.

HUGH M. FRENCH to Miss Clara May Calkins, both of Prosser, Wash., Nov. 25, 1926.

CHARLES T. RUSSELL, JR., to Miss Grace Myers, both of Philadelphia, Dec. 11, 1926.

JOEL C. LAND, Walnut Ridge, Ark., to Miss Elizabeth Davis of Paragould, recently.

FRANK E. ARTAUD to Miss Viola Barili, both of Atlanta, Ga., Dec. 6, 1926.

Deaths

Samuel Lloyd ✠ New York; University of Vermont College of Medicine, Burlington, 1884; Medical Department of Columbia College, New York, 1886; member of the Southern Surgical Association; emeritus professor of surgery, New York Post-Graduate Medical School; attending surgeon to the Lutheran Hospital, consulting surgeon to the Post-Graduate, St. Francis, and Italian hospitals, New York, St. Mary's Hospital, Orange, N. J., St. Francis Hospital, Poughkeepsie, and the Benedictine Sanatorium, Kingston; served during the World War; aged 66; died, Dec. 19, 1926, of coronary thrombosis.

Daniel A. Harrison, Whitestone, N. Y.; Medical Department of the University of the City of New York, 1882; member of the Medical Society of the State of New York, and the American Psychiatric Association; in charge of the New York City Hospital Asylum, 1882-1884; first superintendent of what is now the Kings Park State Hospital; formerly member of the board of health of Whitestone; proprietor and superintendent of a sanatorium bearing his name; aged 74; died, January 6.

Francis Duffield ✠ Detroit; Columbia University College of Physicians and Surgeons, New York, 1900; member of the Central States Pediatric Society; formerly professor of pediatrics, Detroit College of Medicine and Surgery; for eight years member of the Detroit Board of Health; on the staffs of the Woman's and Providence hospitals; aged 53; died suddenly, January 17, of heart disease.

Myron Webster Snell ✠ Jacksonville, Ill.; Jefferson Medical College of Philadelphia, 1898; served during the World War; formerly on the staff of the National Home for Disabled Volunteer Soldiers, National Home, Wis.; chief medical examiner for the American Bankers Insurance Company; aged 55; died, January 4, at the Passavant Hospital, of pneumonia.

Theodore Denton Mills, Middletown, N. Y.; Medical Department of Columbia College, New York, 1876; member of the Medical Society of the State of New York; first president of the board of trustees of the Elizabeth Horton Memorial Hospital, and on the staff of the Thrall Hospital; aged 74; died suddenly, January 21, of cerebral hemorrhage.

Clarence Arthur McWilliams ✠ New York; Medical Department of Columbia College, New York, 1895; member of the American Proctologic Society; served during the Spanish-American and World wars; on the staffs of the New York Skin and Cancer, New York Polyclinic and the Fifth Avenue hospitals; aged 56; died, January 20, of pneumonia.

Charles Stewart Gilmer, Greensboro, N. C.; Medical Department of the University of the City of New York, 1891; member of the Medical Society of the State of North Carolina; for eight years member of the county board of education; aged 62; died, January 5, at a local hospital.

Jacob Barton Cato, Hutsonville, Ill.; Hospital College of Medicine, Medical Department Central University of Kentucky, Louisville, 1891; member of the Illinois State Medical Society; aged 60; died, Dec. 27, 1926, at the Mary Sherman Hospital, Sullivan, following a cholecystectomy.

Simeon L. Lee, Carson City, Nev.; Physio-Medical Institute, Cincinnati, 1870; member of the Nevada State Medical Association; secretary of the state board of health and state board of medical examiners; Civil War veteran; aged 82; died, January 12, of chronic myocarditis.

Edward Swann ✠ Marion, Ala.; Kentucky School of Medicine, Louisville, 1895; served during the World War; president of the Perry County Medical Society; for many years chairman of the county board of education; aged 57; was accidentally shot and killed, January 13.

Harrington Marr ✠ Nashville, Tenn.; Vanderbilt University School of Medicine, Nashville, 1896; member of the Associated Anesthetists of the United States and Canada; formerly instructor in anesthesia at his alma mater; aged 52; died, Dec. 14, 1926, of angina pectoris.

Frank Lee Barrows ✠ Reno, Nev.; University of Colorado School of Medicine, Denver, 1908; member of the Pacific Coast Oto-Ophthalmological Society; served during the Spanish-American and World wars; aged 48; died, Dec. 26, 1926, at Portland, Ore., of carcinoma.

Pliny Baxter Fiske, Byron, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1917; member of the Medical Society of the State of New York; health officer of Byron; served during the World War; aged 40; died, Dec. 27, 1926, of pneumonia.

Edwin Buxton Clift, Fair Haven, Vt.; Hahnemann Medical College and Hospital of Philadelphia, 1900; formerly member of the state legislature; at one time member of the Vermont State Board of Medical Registration; aged 58; died, January 8, following a long illness.

Joseph Lacy Hopson, Cadiz, Ky.; University of Louisville School of Medicine, 1907; member of the Kentucky State Medical Association; secretary of the Trigg County Medical Society; aged 42; died, Dec. 30, 1926, at a hospital in Nashville, of heart disease.

Robert Arnsted Munn, McAlester, Okla.; University of Nashville Medical Department, 1880; member of the Oklahoma State Medical Association; aged 74; died, Dec. 10, 1926, at the home of his daughter in Ocala, Fla., of cardiorenal disease.

Franklin Dexter, Boston; Medical Department of Columbia College, New York, 1887; member of the Massachusetts Medical Society; formerly associate professor of anatomy at the Medical School of Harvard University; aged 69; died, January 18.

Richard Henry Beck, Heckton, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1874; member of the Medical Society of the State of Pennsylvania; aged 75; died, Nov. 29, 1926, of cerebral hemorrhage.

Henry Klar Yaggi ✠ Salem, Ohio; Western Reserve University School of Medicine, Cleveland, 1906; president and on the staff of the Central Clinic and Hospital; aged 50; died, January 21, of cerebral hemorrhage.

Henry E. Kalusowski, Washington, D. C.; George Washington University Medical School, Washington, 1891; dean of the George Washington University School of Pharmacy; aged 76; died, January 7, of myocarditis.

Michael Edwin Claffey, Brooklyn; Long Island College Hospital, Brooklyn, 1901; on the visiting staffs of the Long Island College, and Kings County hospitals; aged 46; died, Nov. 1, 1926, of pulmonary tuberculosis.

Rebecca Prather Laughlin, Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1897; member of the Medical Society of the State of Pennsylvania; aged 69; died, January 26, of heart disease.

Patrick Frank Leary ✠ Turners Falls, Mass.; University of Vermont College of Medicine, Burlington, 1890; on the staff of the Farren Memorial Hospital, Montague City; aged 59; died, January 21, of myocarditis.

David Hutchinson Crawford, Newark, N. J.; Jefferson Medical College of Philadelphia, 1901; member of the Medical Society of New Jersey; served during the World War; aged 55; died, Nov. 15, 1926.

Jake T. Wilhite ✠ Austin, Texas; University of Texas Department of Medicine, Galveston, 1903; director of the Pasteur Institute; aged 50; died recently, at the Seton Infirmary, of pneumonia.

Philip Rifkin, New York; Fordham University School of Medicine, New York, 1919; member of the Medical Society of the State of New York; aged 38; died, January 19, of pneumococcus meningitis.

John Thomas Kent ✠ Birmingham, Ala.; University of Alabama School of Medicine, Tuscaloosa, 1895; served during the World War; aged 56; died, January 2, following a cholecystectomy.

Lester Hevyln Sparks, Lakewood, N. J.; Hahnemann Medical College and Hospital of Philadelphia, 1904; aged 46; died, January 21, at Elkton, Md., as the result of an automobile accident.

Josiah M. Cody, Vero Beach, Fla.; Rush Medical College, Chicago, 1886; member of the Florida Medical Association; aged 65; died, January 8, at the Victoria Hospital, Miami, of pneumonia.

Katherine Radley, Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1902; aged 60; died, Dec. 30, 1926, at the West Philadelphia Homeopathic Hospital, of myocarditis.

Otis A. Biggs ✠ Grayson, La.; Kentucky School of Medicine, Louisville, 1902; past president of the Caldwell Parish Medical Society; aged 52; died, January 23, of cerebral hemorrhage.

George Sidney Clark, Dumont, N. J.; Baltimore Medical College, 1897; formerly member of the board of education and board of health; aged 55; died, January 4, of cerebral hemorrhage.

George L. Sherman, St. Joseph, Mo.; Northwestern Medical College, St. Joseph, 1882; member of the Missouri State Medical Association; aged 65; died, Dec. 25, 1926, of lobar pneumonia.

William Crawson Jayne, Brooklyn; Long Island College Hospital, Brooklyn, 1910; member of the Medical Society of the State of New York; aged 39; died, January 13, of angina pectoris.

Benjamin Luke Padgett ✠ Hastings, Fla.; Medical College of the State of South Carolina, Charleston, 1907; served during the World War; aged 44; died, January 5, of heart disease.

Henry White Broughton ✠ Boston; Medical School of Harvard University, Boston, 1879; on the staff of the Faulkner Hospital; aged 75; died, January 15, of auricular fibrillation.

Harry T. Emeis, San Diego, Calif.; Eclectic Medical Institute, Cincinnati, 1868; aged 84; died, January 6, at the Paradise Valley Sanitarium, National City, of chronic myocarditis.

Adolphus C. Wintermeyer ✠ Covington, Ky.; Medical College of Ohio, Cincinnati, 1893; aged 58; died, January 7, at the Good Samaritan Hospital, Cincinnati, of angina pectoris.

Carrie May Johnson Lemon Bell, San Jose, Calif.; American Medical Missionary College, Chicago, 1901; aged 50; died recently, at Mountain View, of pulmonary tuberculosis.

Armin Fischer ✠ Spokane, Wash.; St. Louis University School of Medicine, 1920; on the staff of the Sacred Heart Hospital; aged 31; died, January 16, of spinal meningitis.

Alfred Leroy Brooks ✠ Audubon, Iowa; Rush Medical College, Chicago, 1883; formerly proprietor of a hospital bearing his name; aged 68; died, January 5, of peritonitis.

Richard C. Barrington, Mount Holly, N. J.; Jefferson Medical College of Philadelphia, 1882; aged 67; died, January 10, at Merchantville, following an operation on the mastoid.

Oliver B. Quin, McComb, Miss.; Medical Department of the Tulane University of Louisiana, New Orleans, 1879; aged 69; died, January 19, of carcinoma of the throat.

William D. Abernathy, Pulaski, Tenn.; University of Louisville (Ky.) School of Medicine, 1875; health officer of Giles County; aged 72; died, January 7, of paralysis.

Thomas Clinton Firebaugh ✠ Harrisonburg, Va.; University of Virginia Department of Medicine, Charlottesville, 1895; aged 57; died, January 12, of pneumonia.

Roscoe S. Plumlee ✠ Brooklyn, Wis.; University of Louisville (Ky.) School of Medicine, 1894; aged 61; died, Dec. 31, 1926, of heart disease and cerebral hemorrhage.

John Charles Carlson, Eaton, Colo.; University of Colorado School of Medicine, Denver, 1902; aged 52; died, January 17, at San Antonio, Texas, of pneumonia.

Charles Ellsworth Bedell ✠ New York; Medical School of Harvard University, Boston, 1900; aged 56; died, January 26, of chronic myocarditis and arthritis deformans.

John Wallace Coffin, Rossland, B. C., Canada; McGill University Faculty of Medicine, Montreal, Que., 1904; aged 48; died, Nov. 21, 1926, of chronic nephritis.

A. Null Osborne ✠ Frum, W. Va.; Loyola University of Medicine, Chicago, 1916; served during the World War; aged 39; died, January 20, of pneumonia.

Elwood Vaughan Hunt ✠ Vienna, Md.; Maryland Medical College, Baltimore, 1912; aged 53; was accidentally shot and killed, Dec. 27, 1926, near Ocean City.

Harry B. Sears ✠ Oshkosh, Wis.; Rush Medical College, Chicago, 1882; formerly deputy state health officer; aged 68; died, Dec. 14, 1926, of angina pectoris.

Edward J. McGovern, Shinnston, W. Va.; Georgetown University School of Medicine, Washington, 1910; aged 41; died, January 19, of pneumonia.

George Dacre Bleything, Whippany, N. J.; Medical Department of Columbia College, New York, 1871; aged 84; died, January 24, of arteriosclerosis.

Josiah Lee Horn, Dexter, Mo.; Missouri Medical College, St. Louis, 1885; served during the World War; aged 62; died, January 2, of pneumonia.

William John Zopfi ✠ Findlay, Ohio; University of Buffalo Department of Medicine, 1889; aged 67; died, January 18, of pleurisy and paralysis.

Elmer F. Frasher, Smicksburg, Pa.; University of Maryland School of Medicine, Baltimore, 1887; aged 65; died recently, of tuberculosis.

George R. Smith, Dover, N. H.; Hahnemann Medical College and Hospital, Chicago, 1888; aged 67; died, January 9, of acute endocarditis.

Charles Harry Harvey, Fairburn, Ga.; Atlanta College of Physicians and Surgeons, 1910; World War veteran; aged 42; died, Dec. 13, 1926.

James Pankhurst, Grand Detour, Ill.; Rush Medical College, Chicago, 1868; aged 81; died, January 8, following a long illness.

Jeremiah A. Casey ✠ Chicago; Chicago College of Medicine and Surgery, 1916; aged 51; died, January 29, of chronic myocarditis.

Benjamin Franklin Scaiefe, Jr., San Pedro, Calif.; Medical School of Harvard University, Boston, 1921; aged 32; died, January 15.

Henry Augustus Canfield, Jr., North Bend, Ore.; University of Oregon Medical School, Portland, 1911; aged 39; died, January 1.

James Moore Conerty, Smith's Falls, Ont., Canada; Queen's University Faculty of Medicine, Kingston, 1886; died, Dec. 26, 1926.

John Wotherspoon, Seattle, Wash.; Northwestern University School of Medicine, Chicago, 1925; aged 28; died, Oct. 7, 1926.

Bud Smith, Leavenworth, Kan.; Kansas City (Mo.) Medical College, 1886; also a druggist; aged 66; died, Nov. 20, 1926.

Peter Cyrill Balde-Sarelli, San Antonio, Texas; Barnes Medical College, St. Louis, 1898; aged 58; died, January 11.

Edwin E. Moore, Merrillan, Wis.; Chicago Medical College, 1878; aged 71; died, Nov. 30, 1926, of cerebral hemorrhage.

Edward R. Wertz, Flat Rock, Ind. (licensed, Indiana, 1902); aged 50; died, in January, at a hospital in Columbus.

Stanley H. Addison, Sawtelle, Calif.; Detroit College of Medicine and Surgery, 1892; aged 68; died, Dec. 17, 1926.

John Bergeson, Boston; State University of Iowa College of Medicine, Iowa City, 1888; aged 63; died, January 1.

Charles Silas Roberts, New York; Syracuse University College of Medicine, 1880; aged 67; died, January 26.

Johnson Niles, Cincinnati; Cleveland-Pulte Medical College, 1899; aged 56; died, in October, at Dayton, Ohio.

William Henry Bailey, Boston; Bellevue Hospital Medical College, New York, 1887; aged 58; died, Nov. 2, 1926.

Frank A. Greedy, Denver; Rush Medical College, Chicago, 1887; aged 63; died, Nov. 28, 1926, of heart disease.

Asa C. Oatley, Cleveland; Miami Medical College, Cincinnati, 1872; aged 79; died, January 9, of pneumonia.

Charles P. Wagner ✠ St. Johnsville, N. Y.; Albany Medical College, 1902; aged 48; died, January 9.

A. M. Brent, Heathsville, Va. (licensed, Virginia, 1885); aged 70; died, Dec. 24, 1926, of heart disease.

C. W. Ashton, Traer, Iowa (licensed, Iowa, 1886); aged 85; died, January 17, of angina pectoris.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

SOME MISCELLANEOUS NOSTRUMS

Brief Analytical Reports from the A. M. A. Chemical Laboratory

Balzone.—At various times THE JOURNAL has received requests for information regarding the so-called Balzone Treatment for Tuberculosis. This has been exploited by one N. L. Waelchli of Denver, Colorado. Waelchli is said to have been an ex-service man who became obsessed with the idea that he knew how to treat tuberculosis. He is alleged to have raised funds for a so-called ranch, consisting of log-cabin houses, which he rented to ex-service men with tuberculosis. The place, it is said, was finally sold to satisfy mortgages. Waelchli charges $15 for the first treatment and $10 for subsequent treatments. The treatment itself, when analyzed in the A. M. A. Chemical Laboratory, appears to be essentially a little colored water into which a few drops of some volatile oil, similar to pine oil, were dropped, and the water brought to a boil. The instructions were for the patient to inhale the steam.

Spray-O-Zone.—The Coral Chemical Company, Inc., of Buffalo, New York, has exploited a product called "Spray-O-Zone." According to the testimonials, Spray-O-Zone has cured hay-fever, bronchitis, bronchial asthma, catarrhal deafness, coughs, colds and sore throat. It also relieves bee-stings

and mosquito bites! The Coral Chemical Company has published advertising cards, telling the public in very large and very red type that Spray-O-Zone is an effective preventive against poliomyelitis: "Protect Your Children From Infantile Paralysis." Spray-O-Zone was exploited under the claim that it "is different to [sic!] any other remedy of its kind on the market." From the tests made in the A. M. A. Chemical Laboratory, it appears that Spray-O-Zone is essentially borax and potassium chlorate dissolved in water. An eight-ounce bottle sells for $1.

Boals Rolls.—A laxative mixture, claimed to be "real fruit, medicated" and sold under the name of "Boals Rolls," was exploited by the Boals Rolls Corporation of New York City. Boals Rolls consisted of large tablets weighing about 100 grains each, with the odor and taste of figs. When tested in the A. M. A. Chemical Laboratory they were found to contain starch, figs and phenolphthalein.

Harriet Hubbard Ayer's Face Cream.—An original sample of "Face Cream" manufactured by Harriet Hubbard Ayer, New York, was submitted to the laboratory for examination as to presence of metallic substances. Qualitative tests showed the presence of ammoniated mercury; zinc oxide was also present. The New Hampshire state chemists analyzed Ayer's Face Cream and in a bulletin, issued in 1918, reported on it as follows: "Submitted with complaint that its use seemed to cause puffiness under eyes, burning of skin, and eruptions. Is a rose-scented white ointment, the constituents of which include zinc oxide and a compound of mercury. User advised of dangerous character and the necessity for caution in applying."

THE "ADJUSTO" ("JUVENATOR") DECLARED FRAUDULENT

Another Indecent Swindle Barred from the United States Mails

One G. R. Damiani, who seems to have done business variously under such trade names as G. Lotto, Olds Appliance, Wisett Manufacturing Company and Sampson Manufacturing Company, all of St. Louis, Missouri, has for some time been exploiting a device which he has called the "Adjusto" and the "Juvenator." On January 22, 1927, a fraud order was issued against the Sampson Manufacturing Company and G. R. Damiani, debarring them from using the United States mails.

According to the memorandum of the Solicitor of the Post-Office Department to the Postmaster General, Damiani began business in 1924 under the name of G. Lotto, and, at that time, sold his device as the "Juvenator." In order to avoid criminal prosecution, Damiani, after operating a short time, signed an order directing the postmaster at St. Louis, Missouri, to treat his mail as "unclaimed." Despite this, in 1925, he resumed operations under the name Wisett Manufacturing Company, which style was subsequently altered to Sampson Manufacturing Company.

Damiani obtained business by circularizing persons whose names he secured in various ways, offering for sale his device—the Adjusto—as an alleged cure for lost manhood, excessive seminal emissions and kindred ailments. The Adjusto was a glass tube about 8 inches long and 2 inches in diameter. One end was open with a projecting rubber about it, which came in contact with the body. In use the male organ was inserted into the tube. On the other end of the glass tube was fitted a small pump, which, when operated, produced a partial vacuum within the tube. Needless to say, such a device would not permanently enlarge an undeveloped male genital organ, nor restore its erectile power or strength; it was not, as claimed, "accepted and proved" as a treatment for the various conditions for which it was sold.

When the post office inspectors investigated this fraudulent scheme, Damiani is said to have admitted in the presence of witnesses that the instrument was intended for the purpose of mechanical masturbation, and to have given as his excuse for selling it that the money that he received for the device would, otherwise, have been spent on immoral women. The government's report further declares that Damiani on several occasions attempted to bribe the Post Office inspector, and at one time is said to have stated to the inspector: "If you will let me operate for a year I will make $300,000 and will split with you 50-50." On another occasion, the report declares, Damiani forcibly thrust $50 in bills into the inspector's pocket.

After considering all the evidence in the case, the Solictor for the Post Office Department declared that Damiani and the Sampson Manufacturing Company were conducting a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises, and recommended that a fraud order be issued. It was issued, as stated.

Medicine of the Future.—I suggest that under adequate medical statesmanship the rank and file of private practitioners of medicine must see to it that the medicine of the future shall swing neither to the extreme of an unscientific art of medicine nor to the extreme of an inartistic science of medicine. In other words, the art of medicine and the science of medicine must be fused in the medicine of the future. And adequate medical statesmanship will seek to effect this union of the art of medicine and the science of medicine, first, in the person and practice of the average physician, and, secondly, in the organization of the medical forces of the state.—Frank, Glenn: *Wisconsin M. J.* **25**:535 (Nov.) 1926.

Correspondence

ADMINISTRATION OF COD LIVER OIL

To the Editor:—I am prompted by Dr. Gerstenberger's note on "The Administration of Cod Liver Oil" (THE JOURNAL, January 22, p. 243) to offer as a supplement the rules laid down more than fifty years ago by my father, the late Dr. John A. Young of Monmouth, Ill., and which, as he did, I have found 99 per cent effective; namely:

1. The habit should be acquired by taking it "straight"; but an oil of first quality that is not old enough to be rancid should be used.

2. The first dose should be a small one—not more than a half teaspoonful; the mouth should be chilled with ice, or ice-water, and the spoon should be chilled in like manner. Clamping the nostrils will further eliminate the odor.

3. The oil should be taken before, not after, meals.

H. B. YOUNG, Burlington, Iowa.

"LUDWIG'S ANGINA AND MEDIASTINAL ABSCESS FOLLOWING TONSILLECTOMY; OPERATION; RECOVERY"

To the Editor:—In THE JOURNAL, Nov. 27, 1926, p. 1831, Dr. Carl M. Sautter takes exception to my method of external opening of abscesses descending into the neck and mediastinum. He says:

> Glogau, in his article on phlegmonous conditions of the neck, advises carrying an incision down to the sternum and sealing off the mediastinum above the clavicle with gauze to prevent a descending abscess; he cites two cases in which this procedure was adopted, which terminated fatally, with some pus found in the mediastinum at postmortem. The advisability of this technic as a routine method, however, seems questionable because of the relative infrequency of the condition. Furthermore, from a cosmetic point of view, one naturally avoids unsightly scarring as far as may be, and also the possibility of defeating one's purpose by unintentional infection of the mediastinum by this form of prophylactic surgery. With the modern facilities available, an early roentgenographic diagnosis may readily be made and the need of such extreme measures averted.

Had Dr. Sautter given full reference to my article instead of just quoting my name, he would have enabled the reader to compare my work, based on thorough clinical, anatomic and operative study at Professor Hajek's clinic at Vienna and on twenty-five cases in which I operated successfully in this country and which were referred to me by otolaryngologists, hospitals and practitioners, with the way this one case of his was treated and described.

In my article "A Typical External Operation for Abscesses Descending from the Upper Air Passages and the Base of the Tongue" (*Laryngoscope* **32**:529 [July] 1922) and in many subsequent publications, I stated the indication, anatomic basis and surgical method of this life saving procedure in cases of threatening mediastinitis due to abscesses descending from the upper air passages.

We cannot speak any more of "Ludwig's angina," as Dr. Sautter calls his case, when he states that general sepsis was present and both sides of the neck were markedly swollen externally with a perceptible emphysema. At this stage, when my procedure of exposing the descending abscess by an incision in front of the sternocleidomastoid muscle, penetrating into the depth of the vascular sheath, draining the retro-esophageal space and sealing at the lower end of the wound the anterior or posterior mediastinum by sterile gauze to prevent the descending of pus (Marschick's prophylactic mediastinotomy) cures the patient within two weeks and prevents mediastinitis, he made "an incision 1 inch in length on both sides below and parallel to the ramus of the inferior mandible, and another of the same length vertical in the median line below the chin." The result was cosmetically beautiful, but eleven days later "palpation revealed that pus was coming from the lower part of the neck, obviously from the mediastinal cavity. At this time, the patient's condition was very bad."

At this critical stage Dr. Sautter performed in his way my method that he had so severely criticized. He made the incision in front of the sternocleidomastoid muscle down to the sternum, and "resection [he probably means dissection] was performed in a manner similar to the technic of jugular resection. Of course, the vessels in the carotid sheath were not disturbed." Of course, to reach the retro-esophageal space and to drain the pus logically from the loose connective tissue layers of this region, the vascular sheath has to be opened almost in every case, especially when necrotic glands are found attached to the carotid artery and jugular vein, or when infiltration around and between the large vessels is present that must be cut to reach the pus behind the vessels. Knowledge of the topographic anatomy of this region eliminates the fear of injuring the bugbear "vascular sheath." The author then says: "Following digital examination, a considerable amount of foul pus escaped from the superior mediastinal cavity." Certainly, near the sternum we do not expect the inferior mediastinum, but what we would like to know is whether his finger was in the anterior or posterior mediastinum. He does not state whether or not he drained the mediastinum. The next day, twelve days after the first operation, a roentgenogram was made, of course too late "to avert such an extreme measure," as my method of procedure is called.

And the result: Twenty-three days after this radical operation, "discharge was still profuse from above the sternum." Why? "Examination with a probe revealed a small rubber drain in the cavity which had been overlooked, no doubt owing to the fact that several physicians had dressed the case in the interim." In my cases, the wounds are not dressed by other physicians, and I do not use small rubber drains, but large cigaret drains which keep the wound open till all secretion stops, thereby avoiding such complications. In his endeavor to overcome this "osteomyelitis," Dr. Sautter called a general surgeon to perform a sternotrepanation. "The patient left the hospital several weeks later. At this time there was still some small amount of watery discharge, but he was in excellent health."

In the second paragraph of the author's conclusions, he advocates my method, which at the beginning of his paper was so severely criticized. In regard to the two cases I am supposed to have cited as having terminated fatally after my procedure was adopted, and in which pus was found in the mediastinum post mortem: These cases were reported by me in the article mentioned as cases from Professor Hajek's laryngologic clinic at Vienna, as follows: "In giving an abstract of the histories of the clinic, we will differentiate between two types of cases, viz.: (1) cases with recovery, and (2) cases with fatal result. For the fact must be recalled that many of the cases admitted to the clinic arrive in such a late stage that the process had already progressed deeply into the mediastinum, so that the operation could not be longer successful." None of my own cases terminated fatally; in all, the patients recovered.

To compare results, I wish to quote the recent case of a nurse's sister, in which the Community Hospital called me to perform the operation. There was, following tonsillar infection, bilateral swelling of the neck, septicemia and pain in the mediastinum. I did not wait for roentgenographic confirmation of these observations. In the vascular sheath, on the jugular vein and carotid artery, necrotic glands of large size were found and excised, and between the vessels, cutting

through indurations, the way was found to foul smelling pus in the retro-esophageal space, a culture of which showed streptococcus. Beneath the belly of the biventer, the tonsillar region was drained, and the anterior mediastinum sealed with gauze. The wound was left wide open, and wet dressings were applied. Ten days later, the patient was dismissed in perfect condition.

OTTO GLOGAU, M.D., New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

FACSIMILES OF MEDICAL CLASSICS

To the Editor:—The list of facsimiles of classic medical articles appearing in THE JOURNAL, January 15, p. 192, is a very interesting and helpful one. There might be added the facsimile reprint of "La thèse de Laënnec," an extraordinarily beautiful bit of work published by Librairie Ch. Boulangé, 14, Rue de L'Ancienne-Comédie, Paris. Some of your readers might be interested in Harvey's "Movement of the Heart and Blood," which is to be had in the Everyman's Library, as well as numerous other important early scientific works.

WADE WRIGHT, M.D., New York.

To the Editor:—In reply to your request for further examples of facsimiles and reprints of medical classics, in THE JOURNAL, January 15, I would suggest:

Camac, C. N. B.: Epoch-Making Contributions to Medical Surgery and Allied Sciences, Philadelphia, W. B. Saunders Company, 1909.
Opuscula Selecta Neerlanicorum De Arte Medica, Amsterdam, 1920 to current number.
Collection choisie des anciens syphiliographes, Paris, Masson et Cie, 1870-1890.
Sydenham Society Publications, old and new series.

The Dutch series, which are still in active progress and have now reached five volumes, contain reprints of the most important Dutch contributions to medical and biologic sciences, in two languages, Latin or English on the left and Dutch on the right. The Sydenham Society publications, of course, while containing much material that is not of a reprint nature, are a valuable and more easily accessible source of many longer contributions that have now become classic and have the advantage of being translated into English.

E. B. KRUMBHAAR, M.D., Philadelphia.

To the Editor:—In THE JOURNAL, January 15, p. 192, you state that you would be glad to learn of any item omitted from the list given.

Noticing David Eugene Smith's Rara Arithmetica, the reason for including it being that many of these arithmetics were written by physicians, I should think that De Magnete, etc., by William Gilbert, would be equally relevant.

I think there are two facsimile editions of Gilbert's De Magnete, one translated by P. Fleury Mottelay and published by John Wiley & Sons, New York, 1893, and another facsimile edition translated by Sylvanus Thompson, published in London about 1903. The De Magnete, of course, mainly considers magnetism and electricity; however, Gilbert does make some references in it to the therapeutics of iron.

W. F. R. PHILLIPS, M.D., Charleston, S. C.

LOWERED RESISTANCE DEFINED

To the Editor:—What is meant by the expressions "lowered resistance" and "lowered powers of resistance"?

H. T. SOUTHWORTH, M.D., Prescott, Ariz.

ANSWER.—Clinical and experimental observations show that there are variations in the resistance to bacterial infection in different species, in members of the same species, and in the same individual under changing conditions. "Lowered resistance" or "lowered powers of resistance" to infection may be said to result from reduction of the natural ability of the body to overcome microbic invasion and its effects. In general, the powers that protect the animal body against infection and its consequences may be spoken of as specific and as nonspecific. This distinction is explained and illustrated in the following. The specific powers are so called because they are directed against individual infectious agents or their products. The antibodies against the typhoid bacillus are specific because they act only on the typhoid bacillus, and diphtheria antitoxin is specific because it acts neutralizingly only on diphtheria toxin. Antityphoid and other specific antiinfectious substances appear to be produced in the body normally because they are present in the body fluids, even if only in seemingly minute quantities; but the quantities may vary in different persons and presumably also in the same person at different times. The same is true of diphtheria and scarlet fever antitoxins, as shown so well by the different responses in different apparently normal persons to the Schick and Dick tests. Measles is feared because it is known to reduce the resistance to tuberculosis, and it is significant that in measles the substance or substances on which the tuberculin reaction depends are suppressed in some way. Distemper in dogs causes a marked reduction in the power to produce antibodies. Secondary infections in general may depend on reduction, local perhaps as well as general, in resistance due in part, as has been suggested, to the reduction in the power of the cells that produce antibodies to respond with normal vigor to repeated antigenic stimulation. Nonspecific defenses against infection are illustrated well by the process of phagocytosis on the part of those mobile and fixed phagocytic cells. It is reasonable to conceive that phagocytic cellular activities may vary under different nutritional conditions and under the influence of a variety of chemical agents. In diabetes the tendency to suppurative infection has been ascribed to reduced phagocytic activity, and in measles and other infections careful tests have indicated that there may be a demonstrable reduction in the inherent phagocytic powers of leukocytes.

EJACULATIO PRAECOX

To the Editor:—Under Queries and Minor Notes (THE JOURNAL, January 22), your answer to "M.D., California," that "premature ejaculation is almost uniformly caused by chronic prostatitis," ignores neuropsychiatric investigations on the subject of ejaculatio praecox. The subject has been fully discussed in psychanalytic literature for the last twenty years by such careful investigators as Freud, Brill and Jones. The psychic factor is at present not overlooked and frequently is found to be the entire cause of the condition when cooperation exists between the urologic and neuropsychiatric departments of clinics and general hospitals. In our experience, chronic prostatitis is the end-result of long neglected cases due originally to mental conflict, and in early cases our urologists do not find a pathologic condition.

PHILIP R. LEHRMAN, M.D., New York.

SYPHILIMETRIC METHODS

To the Editor:—Would you please give me some information on syphilimetric methods for the determination of the cure for syphilis? I have a digest of the method of Vernes as reviewed in *Tropical Diseases Bulletin* (London) **23**, number 1, but nothing else. I am not working in syphilis, but in yaws, which is rife in this section. As stated in this bulletin in its reviews of yaws, we are all seeking to know some standard by which to test our treatment. We all get relapses, I believe, when we admit it or look for them. What percentage of properly treated syphilitic patients relapse? How much danger is there of destroying the patient's natural immunity by a too vigorous use of intravenous neoarsphenamine? I refer to syphilis, of course, since the two diseases are so similar, although to my observation absolutely different.

J. S. MAXWELL, M.D., Nasser, Sobat River, Sudan.

ANSWER.—The answers to these questions hinge on the interpretation given to the word "cure." If the cure of syphilis means the elimination or destruction of all spirochetes, then such cures can be proved only by necropsy, since there is ample proof that one who acquires syphilis may attain a ripe old age, free for decades from any evidence of the disease, symptomatic or serologic, may die of an independent ailment, such as the results of prostatic hypertrophy, and yet postmortem examination will reveal many colonies of living spirochetes scattered through his body. This, of course, is not any more remarkable than that a woman should survive typhoid at 29 years, live the laborious life of a farmer's wife till 83, then die of pneumonia and exhibit post mortem a pure culture of living typhoid bacilli in the gallbladder. The typhoid carrier is recognized as such because he discharges the bacilli in the feces or urine; while the spirochete carrier is not as yet known to discharge these organisms in the semen or other fluids in the later years of the infection.

If, on the other hand, the "cure" of syphilis means freedom from any evidence of that disease for an indefinitely long period, then proof of cure is lacking while he lives, for recrudescence of spirochetal activity has been observed after indefinitely long periods of quiescence. The fact seems to be that, as is now widely recognized, the so-called cure of syphilis is the development of an immunity to the spirochete, the duration of which immunity it is impossible at present to predict; that it may be brief is proved by the numerous instances of a second infection with syphilis a few years after

the first; that the immunity against syphilis acquired through this first infection, whatever the treatment, may be lifelong, at least to the patient's domesticated parasites, seems indicated by the freedom from the disease of many present-day patriarchs who were "cured" of syphilis with mercury and iodine from thirty to fifty years ago. How many of these patriarchs could be infected by a foreign, virulent strain of spirochete is unknown. In that early day, the patient was pronounced cured after two years' treatment; with increasing knowledge of the disease, the period of treatment necessary to a cure was lengthened to three, five, even seven years; then the application of the Bordet-Gengou phenomenon to syphilis by Wassermann established a new and infallible (!) proof of cure, which soon became fallible even when extended to the spinal fluid.

The fact seems to be that in the desire to tell the patient with syphilis that he is cured permanently, the fact that it is impossible with present knowledge to affirm that the spirochetes are destroyed, or even that they are so attenuated as to be permanently unable to do him harm, is overlooked; hence one cannot honestly tell him that he is permanently cured. Since the panic-stricken patient's first and most insistent question is "Can you cure me?" the physician may well give an affirmative answer, with mental reservations that must be revealed before treatment is finally discontinued.

Just as one vaccination in childhood confers immunity against smallpox for an indefinite period—from a few years to life—so one attack of syphilis with intelligent treatment confers immunity against the attenuated spirochetes, possibly harbored in the patient's body for an indefinite period, from a few years to life; as the duration of the immunity against smallpox cannot be predicted for any individual, renewal of that immunity through revaccination every few years is urged, but neglected in practice, because the chance of infection by smallpox is slight. But since the syphilitic person often carries his own spirochetes, against whose activity his acquired immunity is of uncertain tenure, it is imperative that his immunity be renewed through a month's intensive treatment every two years or less. The tragedies of late syphilis —in the heart, arteries, retinas, brain and spinal cord—occur in those who were "cured" many years before, and who therefore did not have later treatment. Fortunate is the man who, years after he has been cured of syphilis, discovers through a skin eruption or other removable lesion that his cure was not permanent and should be renewed at intervals.

SMALLPOX VACCINATION

To the Editor:—Kindly tell me the attitude of pediatricians as to smallpox vaccination in areas other than the arm. Kindly omit my name.

M.D., Louisiana.

ANSWER.—As a general rule, vaccination is still usually done on the left arm. It is possible by vaccinating rather nearer the shoulder and slightly to the posterior side of the arm to have a scar that is not especially noticeable. By making a small single scarification and not using a vaccination shield or any dressing that prevents air reaching the vaccination, a comparatively slight scar is usually obtained. Vaccination may be done on areas other than the arm, the most usual being on the leg or thigh. There are two possible objections; first, infection is perhaps a little more likely to occur; second, during an active take there may be some difficulty in walking and it may be necessary to stay off the feet for a few days. This is a greater inconvenience than when one is unable to use an arm.

LACTATION AND PREGNANCY

To the Editor:—What is the relation between menstruation and lactation, and lactation and pregnancy? Please omit name.

M.D., California.

ANSWER.—Lactation affects the function of menstruation. Ehrenfest found that after delivery the menses reappeared in three months in 50 per cent, before six months in 71 per cent, and before the women stopped nursing in 81 per cent. The amenorrhea of lactation, therefore, is not constant. Women that have a prolonged amenorrhea after nursing are likely to have lactation atrophy of the uterus which may be permanent.

Often lactation in a menstruating woman produces alterations in the milk which make the baby sick for a few days.

It is generally believed that the changes that prepare the female breast during pregnancy for the function of lactation are produced by some influence issuing from either the corpus luteum or placenta, or both. Frankl and others believe that the placenta stimulates the growth of the breast and produces the formation of colostrum, but that it inhibits the actual formation of milk, and that as long as there is any placenta in the uterus, lactation does not take place. It is well known that pregnant cows produce milk in large quantities. In one case a placental polyp was present in the uterus while a woman was nursing a baby. Therefore, it does not seem that the loss of the placental influence allows lactation to take place.

It is a fact that a nursing woman who becomes pregnant has altered, diminished or rapidly failing milk secretion.

ESTIMATION OF LOSS OF VISION

To the Editor:—Could a rating of vision loss be made with the following factors missing: (1) visual acuity for near; (2) field of vision; (3) muscle function? M.D.

ANSWER.—Up to a comparatively few years ago, nearly all the tables for estimating loss of vision from the standpoint of compensation were based on the loss of vision for distance alone. The Holt and Magnus tables were noticeable exceptions to this. But during the last ten years it has become accepted gradually that the loss of vision for distance alone is not a measure of loss of visual efficiency. This view has been confirmed by the acceptance of the report of the Committee of the Section on Ophthalmology of the American Medical Society by the American Medical Association, the American Academy of Ophthalmology and Oto-Laryngology, and the American Ophthalmological Society, not to mention innumerable local ophthalmic societies. In this report, the loss in visual efficiency is based on the disturbance in distance vision, in near vision, in visual fields, and in motor function. The answer to the question therefore depends on the question itself. If loss of visual acuity alone is at stake, the other three factors are not essential; but if loss of visual efficiency is meant, the three factors mentioned are necessary for an accurate rating.

MASSAGE OR MANIPULATION FOR RELAXATION OF PELVIC JOINTS

To the Editor:—Please comment on the following situation: A multipara, seven months pregnant, has a marked relaxation of the pelvic joints. She is now taking osteopathic treatments, which consist of rather strenuous manipulation of the lower extremities at the hip joints, and pelvic massage. She seems to experience relief after this procedure. As De Lee recommends rest with a girdle or adhesive straps, I am wondering whether the above would not produce harm, and if so, how much?

M.D., Iowa.

ANSWER.—Pathologic relaxation of the pelvic joints is a rare complication of pregnancy and one in which experience has shown that rest in bed gives the most relief. If this patient receives benefit from manipulation of the joints it is more than probable that the case has been wrongly diagnosed and that she suffers from venous congestion or other conditions which may be relieved by active and passive massage. A roentgenogram would show a pathologic relaxation of the joints, and if it exists the standard treatment of rest and support with a tight binder should be instituted.

INSULIN PERLINGUALLY

To the Editor:—In THE JOURNAL, March 6, 1926, p. 687, is an article on the "Technic of Medication" by Bernard Fantus. In it is mentioned an attempt made to use the perlingual method for introduction of insulin into the body. I am interested in obtaining information concerning work done in this field, and should like to obtain references for investigating the subject. Would it be possible for you to furnish me with the information concerning the literature on the subject?

ESTELLE E. KLEIBER, Hoboken, N. J.

ANSWER.—Mendel, Wittgenstein and Wolffenstein (*Klin. Wchnschr.* **3**:2341 [Dec. 16] 1924) assert that insulin is capable of exerting its action on perlingual application, though a certain dose is only a third as effective as when given subcutaneously. The dry substance must be employed, the solution not being sufficiently active in this mode of application. They had tablets prepared for this purpose, which the authors emphasize must be vigorously rubbed into the tongue; and swallowing of the saliva is prohibited for as long as possible after their administration. The effect is not obtained if the tablets are merely permitted to dissolve in the mouth. The mouth must be kept in good condition, as a coated tongue absorbs insulin poorly.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALASKA: Juneau, March 7. Sec., Dr. Harry C. DeVighne, Juneau.
CONNECTICUT: Hartford, March 8-9. Sec., Dr. Robert L. Rowley, 79 Elm Street, Hartford. Homeopathic Board: New Haven, March 8. Sec., Dr. Edwin C. M. Hall, 82 Grand Avenue, New Haven.
IDAHO: Boise, April 5-6. Commissioner of Law Enforcement, Mr. F. A. Jeter, Boise.
MAINE: Portland, March 8-9. Sec., Dr. Adam P. Leighton, Jr., 192 State Road, Portland.
MASSACHUSETTS: Boston, March 8-10. Sec., Dr. Frank M. Vaughan, Room 144, State House, Boston.
MONTANA: Helena, April 5. Sec., Dr. S. A. Cooney, Helena.
NEW HAMPSHIRE: Concord, March 10-11. Sec., Dr. Charles Duncan, Concord.
OKLAHOMA: Oklahoma City, March 8-9. Sec., Dr. J. M. Byrum, Shawnee.
PORTO RICO: San Juan, March 1. Sec., Dr. D. Biascoechea, Box 804, 3 Allen Street, San Juan.
WEST VIRGINIA: Charleston, March 16. Sec., Dr. W. T. Henshaw, Charleston.

Iowa Licensure Report

Dr. H. W. Grefe, director of examinations and licenses of the Iowa Department of Health, reports the written examination held at Iowa City, June 8-10, 1926. The examination covered 8 subjects and included 100 questions. An average of 75 per cent was required to pass. Seventy-three candidates were examined, all of whom passed. Dr. Grefe also reports that 9 candidates were licensed by examination, September 20, 15 by reciprocity, and 2 by endorsement of their credentials, August 25, and 9 were licensed by reciprocity and 2 by endorsement of their credentials, November 16. The following colleges were represented:

College	Passed (June 8-10)	Year Grad.	Per Cent
Northwestern University Medical School		(1926)*	86.8
State University of Iowa College of Medicine		(1926)	83.9, 84.6, 84.6, 84.8, 85, 85.8, 86.1, 86.1, 86.1, 86.4, 86.5, 86.6, 86.6, 86.6, 86.8, 86.8, 86.9, 87.1, 87.4, 87.5, 87.5, 87.5, 87.6, 87.6, 87.6, 87.8, 87.8, 87.9, 88, 88, 88.3, 88.3, 88.3, 88.3, 88.4, 88.4, 88.5, 88.5, 88.6, 88.6, 88.6, 88.8, 88.8, 88.8, 88.9, 88.9, 88.9, 88.9, 88.9, 89, 89.3, 89.3, 89.4, 89.4, 89.4, 89.4, 89.6, 89.6, 89.6, 90, 90, 90, 90.4, 90.5, 90.8, 91, 91.3, 91.4, 92.8
Creighton University College of Medicine		(1926)	86.9, 87

College	Passed (Sept. 20)	Year Grad.	Per Cent
Northwestern University Medical School		(1903)	86.3
State University of Iowa College of Medicine		(1925)	88
Harvard University		(1924)	86.4
St. Louis University School of Medicine	(1923) 89.1,	(1924)	85.3
Washington University School of Medicine		(1925)	84.5
Creighton University College of Medicine		(1925)	88.9
University of Pennsylvania School of Medicine		(1925)	87.8
Queen's University Faculty of Medicine		(1922)	86.3

College	Licensed by Reciprocity (Aug. 25)	Year Grad.	Reciprocity with
Hahnemann Medical Collegee and Hospital, Chicago		(1922)	Illinois
Rush Medical College		(1924) Minnesota, (1925)	Illinois
University of Michigan Medical School		(1925)	Michigan
University of Minnesota Medical School		(1918), (1926)	Minnesota
Creighton University College of Medicine		(1925, 2)	Nebraska
University of Nebraska College of Med		(1923), (1925, 3)	Nebraska
University of Buffalo Department of Medicine		(1925)	Maryland
University of Texas Department of Medicine		(1918)	Texas
Marquette University School of Medicine		(1926)	Wisconsin

College	Endorsement of credentials	Year Grad.	Endorsement with
Rush Medical College		(1926)	N. B. M. Ex.
University of Edinburgh, Scotland		(1924)	N. B. M. Ex

College	Licensed by Reciprocity (Nov. 16)	Year Grad.	Reciprocity with
Chicago College of Medicine and Surgery		(1908)	Illinois
Rush Medical College		(1924)	Illinois
University of Michigan Medical School		(1920)	Michigan
Creighton University College of Medicine		(1922)	Nebraska
University of Nebraska College of Medicine		(1925, 3)	Nebraska
Ohio State University College of Homeopathic Med		(1921)	Ohio
Jefferson Medical College of Philadelphia		(1925)	New Jersey

College	Endorsement of credentials	Year Grad.	Endorsement with
State University of Iowa College of Med		(1924), (1925)	N. B. M. Ex.

* This candidate has finished his medical course and received his M.D. degree, and will receive his license on completion of a year's internship in a hospital.

Medical Economics

THE DISAPPEARANCE OF DOCTORS FROM SMALL TOWNS

Irregulars in Small Towns

WILLIAM ALLEN PUSEY, M.D., LL.D.
CHICAGO

In a recent study I [1] showed that the average age of rural doctors throughout the United States is over 52 years, and that in average rural counties the supply of doctors is greatly diminishing. There is overwhelming other information in support of the second fact. Against these facts the argument is made, "Yes, this is true, but rural districts still have their doctors who are supplying the needs of medical service there; when they disappear and there is need for new doctors they will go in."

When it is suggested that irregular practitioners will take the place of physicians, to a considerable extent, when they disappear, the answer is made: "They do not go to the country; they go where picking is good, just as physicians do." This assumption is even used as an argument that the cost of medical education does not have any bearing on the distribution of physicians. Repeated answers to the same effect suggested to me a study of both questions.

The first study was to determine whether doctors are replacing those that disappear from small towns. For this purpose the directories of the American Medical Association for 1914 and 1925 were compared. Twenty towns of a population of 1,000 or less in each state were taken for this comparison from the directory of 1914. In the first state, Alabama, twenty consecutive towns were chosen, beginning with A, in the next state twenty were chosen beginning with B and so on, going to the following letter for the beginning throughout the forty-seven states. Rhode Island was omitted because it is a small urban district and such a study could not be made there. In this way it would seem as accurate a cross section of towns were selected as could be made. Then these 940 towns that had physicians in 1914 were compared with the directory for 1925. In the 1925 directory only 630 of these 940 towns still had physicians. Physicians had disappeared from 310—approximately one third of them—in the last eleven years. These statistics indicate that one third of the towns in the United States of 1,000 or less which had doctors in 1914 are now without them.

That, it would seem, would leave little room for the contention that when doctors disappear from small towns and the actual need for medical service exists, new men will take their places.

In order to study the question whether irregular practitioners go into country districts where doctors are not now going I went to the same counties in which I [1] recently studied the question of the age of rural physicians. In that study I received returns from 283 average rural counties in forty-one states. These rural counties had been selected for me as average rural counties by the secretaries of the state medical societies. My questionnaire on irregular practitioners in these counties I sent to the same physicians to whom my previous questionnaire had been sent. They were asked to answer the following questions as accurately as possible:

The number of osteopaths in the county?
The number of osteopaths in the county more than ten years?
The same questions for chiropractors.
The same questions for other irregular practitioners.

I received replies to this questionnaire from 162 of the same 283 counties in twenty-nine states.

1. Pusey, W. A.: Medical Education and Medical Service, J. A. M. A. 86: 1501 (May 15) 1926.

In these 172 counties, my previous study of rural medical service showed that there are 210 doctors of the last ten years. The replies to this last questionnaire show that there are 470 irregular practitioners of the last ten years.

In the 283 counties included in my previous study, there were 100 counties in which there were not any doctors of the last ten years. I received replies to my last questionnaire from sixty-four of these 100 counties; in these sixty-four counties,

TABLE 1.—*Rural Distribution of Physicians and Irregular Practitioners During Last Ten Years*

State	Medical Graduates of Last Ten Years	Irregular Practitioners of Last Ten Years in Same Counties
Arizona	1	16
Arkansas	3	11
Colorado	6	43
Connecticut	1	7
Delaware	2	2
Florida	4	12
Illinois	12	9
Indiana	5	14
Iowa	20	49
Kansas	6	15
Kentucky	0	2
Maine	12	20
Michigan	3	6
Minnesota	9	21
Missouri	5	17
Nebraska	13	37
New Jersey	6	2
New Mexico	0	5
New York	17	21
Ohio	12	15
Oregon	12	42
Pennsylvania	16	19
South Dakota	3	13
Tennessee	5	11
Texas	5	13
Utah	11	3
West Virginia	3	4
Wisconsin	13	22
Wyoming	5	18
	210	472

TABLE 2.—*Irregulars in Counties Without Recent Physicians*

State	Counties Not Having Medical Graduates of Last Ten Years	Number of Irregulars Entering Practice in Same Counties in Last Ten Years
Arizona	2	7
Arkansas	5	11
Colorado	1	6
Florida	3	5
Illinois	1	1
Indiana	3	6
Iowa	3	10
Kansas	2	5
Kentucky	3	2
Michigan	1	0
Minnesota	1	5
Missouri	5	10
Montana	3	2
Nebraska	2	12
New Mexico	5	5
New York	1	4
Ohio	2	6
Oregon	5	8
Pennsylvania	3	5
South Dakota	3	6
Tennessee	3	1
Texas	1	1
Utah	2	0
West Virginia	4	3
	64	121

in which not any physician of the last ten years had settled, 121 irregular practitioners had settled in the last ten years. It is not true, then, that irregular practitioners will not go into small towns where doctors will not go.

The results of this study and of all other studies that I have been able to make on the subject show, as I think every study of the distribution of physicians must show, that they are controlled by simple economic principles which apply to all commodities, namely:

As you increase cost you restrict distribution. This applies in medical education as follows:

As you increase its cost you rapidly diminish the number of persons who are able to obtain it.

In medical service it acts as follows:

As you increase the cost of the license to practice medicine you increase the price at which medical service must be sold and you correspondingly decrease the number of people who can afford to buy this medical service.

There is not any way of getting away from the action of these principles on the cost of medical service and the distribution of medical men; and yet their action is habitually denied by educators as applying to medicine.

Book Notices

NEURITIS AND NEURALGIA. By Wilfred Harris, M.D., F.R.C.P., Senior Physician to St. Mary's Hospital, and to the Hospital for Epilepsy and Paralysis, Maida Vale. Price, $4. Pp. 418, with 45 illustrations. New York: Oxford University Press, 1926.

There is probably not another field in medicine that is more clouded and uncertain than that of the neuralgias and neuritis, terms that are used extensively to cover a great deal of ignorance, and at the same time none that is so important in practice. This field covers the great realm of vague but intensely annoying pains in various parts of the body which are sometimes the result of serious disease and are always incapacitating. In this book, Harris has rendered a real service by systematizing the material and bringing together the important features of the extensive literature on the subject. This is combined with an excellent account of the anatomy and of therapy. The work is divided into twenty-three chapters, the first five of which deal with multiple and local neuritis, and the remainder with the great group of neuralgias and the conditions with which they are allied. These include such subjects as migraine, Sluder's sphenopalatine neuralgia, ciliary neuralgia, vasomotor disorders, muscular rheumatism and chronic spinal diseases. The descriptions are lucid, the attitude is conservative, the illustrations are excellent and the work of the publisher is admirable. The book will be of interest not only to the neurologist but also to the surgeon and the general physician, to all of whom it can be heartily recommended.

THE SURGEON'S LOG. Impressions of the Far East. By J. Johnston Abraham. Seventh edition. Cloth. Price, $5. Pp. 361, with illustrations. New York: E. P. Dutton & Company, 1926.

The author, from his service as a ship physician, describes a long trip through the orient. He writes with a fine sense of humor, with a great deal of interest in people, and at the same time with an appreciation of the meaning of nature and its scenes. The book concludes with a testimonial to its veracity from the captain of the ship.

DIE BIOLOGIE DER PERSON. Ein Handbuch der allgemeinen und speziellen Konstitutionslehre. Herausgegeben von Dr. Th. Brugsch, und Prof. Dr. F. H. Lewy. Lieferung 2—Band 1. Spezielle Vererbungslehre. Von Priv. Doz. Dr. G. Just. Individualanatomie. Von Prof. Dr. W. Lubosch. Individualpathologie und Krankheitslehre. Von Dr. G. Mittasch. Person und Infekt. Von Dr. F. Schiff. Paper. Price, 21 marks. Pp. 323-748, with 126 illustrations. Berlin: Urban & Schwarzenberg, 1926.

DIE BIOLOGIE DER PERSON. Ein Handbuch der allgemeinen und speziellen Konstitutionslehre. Herausgegeben von Prof. Dr. Th. Brugsch, und Prof. Dr. F. H. Lewy. Lieferung 3—Band 1. Konstitution und Rasse. Von Dr. V. Lebzelter. Die Lebensdauer des Menschen. Von Dr. H. Ullmann. Paper. Price, 19.80 marks. Pp. 749-1051, with 10 illustrations. Berlin: Urban & Schwarzenberg, 1926.

These two volumes constitute portions of a monumental system of biology, to which a great many German contributors on this subject have lent their aid. Among the subjects considered in the two parts here reviewed are the effects of heredity in determining body development, individual anatomy

and pathology, effects of infectious diseases, race and racial influence in establishing body-build, and an extremely interesting section on longevity. It is concluded that the length of life is a constitutional factor controlled, of course, by other influences. Few human beings achieve natural deaths from senility, so that death is the result of a combination of factors working without and within the organism. The science of the future must endeaver to learn the constitutional factors involved and to control them as greatly as possible. Succeeding volumes of this series will take up all other factors concerned in developing the constitution and character of the human being.

A REPORT ON THE NATURAL DURATION OF CANCER. By Major Greenwood, F.R.C.P. No. 33—Reports on Public Health and Medical Subjects. Paper. Price, 9d. net. Pp. 26. London: His Majesty's Stationery Office, 1926.

As a result of scientific investigation of the length of life of persons with cancer, the author concludes that an untreated victim of cancer of the breast has 17.2 per cent of the normal duration of life to accept; a woman operated on under the most favorable conditions has 68.5 per cent, and one operated on under the present unsatisfactory conditions has 30.4 per cent of the normal duration. The advantage secured, therefore, by the woman operated on under the most favorable existing conditions is 51.3 per cent. The author estimates that the annual quota of new cases of cancer of the breast in England and Wales is numbered at at least 5,000, and that if all of these were operated on under the most favorable conditions, more than 30,000 years of life would be gained for this group. In brief, the normal expectation of life of a woman aged 55 years is 18.87 years. The expectation of life of a woman with untreated cancer of the breast is 3.25 years. The expectation for one operated on under average conditions is 5.74 years, and of a woman operated on under the best conditions, 12.93 years. Halsted of Johns Hopkins found that 75 per cent of his patients were alive three years after operation.

DAS PROBLEM DER TUBERKULOSEBEHANDLUNG MIT FETTSTOFFEN. Von Dr. Ferdinand Mattausch, Facharzt, Leiter der Behandlungsstelle für Lungenkranke der Betriebskrankenkasse der Wiener städtischen Strassenbahnbediensteten. Paper. Price, 2.40 marks. Pp. 66, with 9 illustrations. Berlin: Urban & Schwarzenberg, 1926.

The first part of this monograph is devoted to a review of the literature dealing with the fatty acids and lipoids (fat bodies) and their relation to tuberculosis. Short chapters give the present status of our knowledge of the composition of the fatty envelop of the tubercle bacillus and its disintegration by the defense mechanism of the body. The author favors the view that serum lipases are responsible though their origin is uncertain. Some evidence of possible antigenic properties of fat compounds is adduced, and finally the question is discussed of the therapeutic use of fatty substances of nonbacterial origin (and therefore nonspecific) to stimulate antibody production. In the second part, the author gives his experience with "Lipo my Kol," the trade name for a combination of waxes, fats and lipoids, to be used subcutaneously and by inunction. Charts are reproduced to show some favorable effects on the blood of tubeculous patients as to differential count and lipase titer, and finally clinical results are discussed. These are considered rather favorable, though the claims made are quite conservative. No mention is made, however, of a definite control series of cases.

HYGIÈNE MENTALE: Historique et organisation actuelle. Méthode. Principes fondamentaux. Applications diverses. Par Dr. M. Potet, Médecin-Principal de l'armée. Préface du Dr. Toulouse, Medecin-Directeur de l'Hôpital Psychiatrique Henri Rousselle. Paper. Price, 40 francs. Pp. 599. Paris: E. le François, 1926.

Mental hygiene is slowly but surely coming to take its place as a medical problem of the first importance, not only in the interest of the individual but also in that of society in general. Gradually it is being recognized that mental health means something more than is expressed in the ancient doctrine of mens sana in corpore sano. The literature available for instruction in this field, though extensive, is poorly organized, and there is great need of textbooks suitable for use in medical and other special schools. Potet has rendered a distinct service in this direction, though the completeness of his exposition renders the book somewhat large. The volume contains an excellent history of the mental hygiene movement and the organizations for popular education and for research that have grown up in France and other countries, with full appreciation of the services of Clifford Beers and the National Committee for Mental Hygiene in the United States. The author outlines the general principles on which the conservation of mental health is founded, and gives a detailed account of methods for study of cases which are illustrated by the results of practical experience. The bibliography is excellently covered and would alone justify the publication. The book will be of interest not only to psychiatrists, psychologists and social workers but also to students and practitioners of medicine who have in mind the treatment of the patient rather than of his disease.

THE BASIS OF LIGHT IN THERAPY. By Herman Goodman, B.S., M.D. Cloth. Price, $3.50. Pp. 163, with illustrations. New York: Medical Lay Press, 1926.

The author has endeavored to include in this book the fundamental knowledge necessary for some comprehension of the uses of light in the treatment of disease. He describes the different kinds of apparatus that are available, giving particular attention to questions on the penetration of light when supplied in various forms. On this topic he has made independent research, which is of value. He distinguishes clearly the effects of light from the various portions of the spectrogram, accepting largely the statements of Hays and Humphris as to the value of infra-red. The author has apparently selected with judgment from current textbooks and from advertising literature on this subject. His book will be found helpful by all who are interested in scientific developments in this field.

DIE LICHT-THERAPIE. Von Dr. med. Hans Malten, Leitender Arzt des Dr. Maltenschen Institutes für Nerven- und Stoffwechselkranke, Baden-Baden. Paper. Price, 6.60 marks. Pp. 88, with 66 illustrations. Munich: J. F. Bergmann, 1926.

This is a short and concise manual on light therapy, and well illustrated. Attention is called to the cardinal points presented and to summarizing paragraphs by heavy marginal lines. The physics, biology and sources of light are ably discussed in clear and simple, though strictly scientific terms. The instructions given on "practice" and "methods" are somewhat of restricted value and application, because apparatus of German manufacture only are described. Chapter VI mentions more than 150 diseases, grouped under ten distinct classes, giving for each condition the type of light therapy indicated and the method, dosage and frequency of the application recommended, thus revealing the wide therapeutic application of light.

AN INTRODUCTION TO BIOLOGY. By Alfred C. Kinsey, Sc.D., Associate Professor of Zoology, Indiana University. Cloth. Price, $2.50. Pp. 558, 430 illustrations. Philadelphia: J. B. Lippincott Company, 1926.

The author, who is associate professor of zoology at Indiana University, presents this volume as a high school textbook with a view to avoiding the technical discussions that have marked other books of this type, and in an attempt to interest the student by the narrative method rather than to appall him by the technical language of science. He has called on much general knowledge in developing the book, and on special knowledge for criticism of the various chapters. Practically every page is illustrated, many with two or three excellent pictures. For the general reader, this textbook of high school biology may be particularly recommended.

RITUAL AND BELIEF IN MOROCCO. Volume 1. By Edward Westermarck, Ph.D., Hon. LL.D., Martin White Professor of Sociology in the University of London. Cloth. Price, $15 for the two volume set. Pp. 608, with illustrations. New York: Macmillan Company, 1926.

Among the fundamental sciences frequently neglected by those undertaking the study of medicine, anthropology and ethnology are conspicuous. Certainly, a knowledge of the body structure and racial customs of the people of the world is fundamental to an understanding of their health and diseases. The present volume offers a consideration of these

factors as they concern the people of Morocco. Primitive magic and demonology underlie much of the early practice of medicine; for example, one section of this work deals with the existence of healing springs and shrines erected to saints in their vicinity. In one spring, persons suffering with rheumatism or syphilis bathe themselves before proceeding to the shrine of a saint who is buried close by and who presumably has powers in the control of these diseases. Another spring, called "the Spring of Leprosy," is much affected by persons with syphilis and skin diseases. The patient throws bread to the saints, washes himself with the water, and then offers candles and money at the shrine. Professor Westermarck neglects none of the medical aspects in his consideration of Moroccan customs, and his book will be found of special interest by physicians.

Books Received

Books received are acknowledged in this column, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for more extensive review in the interests of our readers and as space permits. Books listed in this department are not available for lending. Any information concerning them will be supplied on request.

HISTORY TAKING AND RECORDING. By James A. Corscaden, M.D., Associate in Obstetrics and Gynecology, Columbia University, New York. Cloth. Price, $1.50. Pp. 78. New York: Paul B. Hoeber, Inc., 1926.

Guide to history-taking which instructs at the same time in diagnosis.

UEBER DAS KONGENITALITÄTSPROBLEM DER SYPHILIS. Von Regierungsrat Dr. Carl Hochsinger, Direktor des I. öffentlichen Kinder-Krankeninstituts. Paper. Price, 2.40 marks. Pp. 53. Berlin: S. Karger, 1926.

Shows the need for early and strenuous treatment of syphilis.

NOCIONES DE DERMATOLOGÍA Y SIFILOGRAFÍA. Por el Dr. Vicente Pardo Castello, professor auxiliar de dermatologia y sifilografia de la Universidad de la Habana. Leather. Pp. 730, with 208 illustrations. Havana, 1927.

Textbook of dermatology.

DAS WESEN DER AFFEKTFREIEN QUALITATIVEN BEDEUTUNGSGEFÜHLE: Eine Untersuchung über den Stand des Gefühlsproblems. Von Dr. med. et. phil. K. J. Hartmann. Paper. Price, 7.20 marks. Pp. 120. Berlin: S. Karger, 1926.

Psychology of the emotions.

DAS NEUROSENPROBLEM VOM LEBENSWISSENSCHAFTLICHEN STANDPUNKT AUS. Von Dr. Edgar Leyser, Privatdozent für Psychiatrie und Neurologie Oberarzt an der Klinik für psychische und nervöse Krankheiten in Giessen. Paper. Price, 3.20 marks. Pp. 66. Berlin: S. Karger, 1927.

A psychanalytic consideration.

ANLEITUNG ZUR DIATHERMIEBEHANDLUNG. Von Dr. G. Bucky. Second edition. Paper. Price, 6 marks. Pp. 200, with 132 illustrations. Berlin: Urban & Schwarzenberg, 1927.

Monograph with consideration of literature on diathermy.

CONTRE FREUD: Critique de toute psychologie de l'inconscient. Par Jean Bodin. Paper. Price, 40 cents. Pp. 99. Paris: Masson & Cie, 1926.

Careful but passionate annihilation of the freudian concepts.

HÄMATOLOGISCHES PRAKTIKUM: Für Studierende und Aerzte. Von Hans Ziemann, a. o. Professor an der Universität Berlin. Cloth. Price, 7.20 marks. Pp. 166, with 37 illustrations. Berlin: S. Karger, 1927.

Outline for study of the blood.

ANNUAL REPORT OF THE SURGEON GENERAL U. S. ARMY TO THE SECRETARY OF WAR 1926 for the Fiscal Year Ended June 30, 1926. Paper. Pp. 482, with illustrations. Washington: Government Printing Office, 1926.

KURZES LEHRBUCH DER CHEMISCHEN PHYSIOLOGIE. Von Dr. Ernst Schmitz, o. ö. Professor an der Universität Breslau. Second edition. Cloth. Price, 16.80 marks. Pp. 384. Berlin: S. Karger, 1927.

ANNUAL REPORT OF THE DIRECTOR UNITED STATES VETERANS' BUREAU for the Fiscal Year Ended June 30, 1926. Paper. Price, 50 cents. Pp. 372. Washington: Government Printing Office, 1926.

THE CAUSE AND CONTROL OF SEX IN HUMAN OFFSPRING. By R. Clay Jackson. Cloth. Price, $5. Pp. 205, with illustrations. Tacoma: The Author, 1926.

Medicolegal

Competence of Evidence in Action for Malpractice

(Lemon v. Kessel et al. (Iowa), 209 N. W. R. 393)

The Supreme Court of Iowa, in reversing a judgment obtained by the plaintiff, says that he, having sustained an oblique fracture of the femur of his right leg, an alleged injury to his knee, and an alleged fracture of the neck of the femur, was treated by the defendants, after which the injured leg was found to be approximately 3 inches shorter than the other leg. A witness was asked whether or not the line of treatment used by the defendants was the usual and ordinary practice of the profession in that place and similar communities in 1918. This line of questioning was objected to on the ground that it called for a conclusion and invaded the province of the jury. This court has made a pronouncement on this question in which it held that this form of question was subject to the objection herein made. The rule as this court understands it to be in Iowa is that the witness should testify as to what the usual and ordinary line of treatment is in similar cases at the place in controversy and like localities; next, show what line and character of treatment was used, but leave the conclusions or deductions to be made therefrom to the jury. In other words, after having shown the line of treatment actually used, and also showing what the usual, ordinary and customary line of treatment was in such cases, it is for the jury, and not the witness, to draw the conclusion. The court confesses that this is rather narrow, but it is apparently a definite line. It is therefore obvious that the ruling of the trial court on these objections was correct.

Under objection, witnesses were not permitted to testify that the result of the line of treatment used by the defendants was "satisfactory." In one instance, in which the witness testified that the result was "satisfactory," that part of the answer was stricken by the court. Both of these rulings were correct, because the matter stated was wholly a conclusion, and, in fact, was not enlightening. The conception of what is satisfactory rests wholly in the mind of the witness, and does not give light to the jury. The testimony that the result was good or bad is of the same character, and is subject to the same objection.

Testimony was offered by one of the defendants tending to show that, in a case of oblique fracture, particles of flesh and muscle are likely to obtrude themselves between the fractured ends of the bone, and thus cause a slipping. This evidence was rejected when it should have been admitted. The evidence showed that the bones did slip, and this proposed evidence might have thrown light on the question of why they slipped. Again, one of the defendants was asked to describe to the jury, in his own way, the plaintiff's condition when he left the hospital, when the witness last saw him, and what happened to the fracture of the neck of the femur before that time and at the time roentgenograms were taken. Objection was made to this and sustained. It should have been overruled, as there could not be any question as to the competence and materiality of this testimony.

The plaintiff's expert testified that one of the recognized methods of treating such condition as existed in this case was what was known as the "open method." To meet this the defendants sought to prove that such "'open method" was not the usual and ordinary method of practice in that place at the time in controversy. Objection was sustained to this when it should have been overruled. The plaintiff injected the "open method" of treatment into the case, and the defendants had the right to show that such treatment was not used in the ordinary practice at the place in controversy.

This action was brought against the defendants jointly. One of the defendants, however, had nothing to do with the case until it reached the hospital, and as the claim was against them jointly, any negligence of the other defendant prior to that time would not be chargeable to them jointly. Consequently, when the plaintiff sought to show that there was negligence in the care of his limb after the accident occurred and before he reached the hospital, an objection to

this line of testimony was rightfully sustained, as it was not a material issue in the case, and could not be a basis for a judgment against the defendant jointly.

An objection was properly sustained to questions by which the defendants sought to show that a shortening of 1 or 2 inches would be the ordinary result under such circumstances, as the question did not measure up to the facts in the case. But it was error not to permit the defendants to introduce testimony to negative that of plaintiff's witnesses who testified that at various times after he had been taken to the hospital he made complaints of pain and discomfort. And an objection should have been overruled when made to a question asking one of the defendants as to what was the usual and ordinary practice among physicians and surgeons in that place and similar communities in the treatment at that time of a knee such as he found the plaintiff had. To hold the defendants for the result of new conditions after he left the hospital, the plaintiff should have notified the defendants of such new conditions, not the natural result of the previous existing conditions.

"Confined," Though Able to Go to Physician's Office

(Newton v. National Life Ins. Co. (La.) 108 So. R. 769)

The Supreme Court of Louisiana, in affirming a judgment for the plaintiff on an accident and sick benefit policy of insurance, says that the policy provided for the payment of weekly benefits "for each day that the insured is by reason of illness under the care of a physician and necessarily confined to bed, except that, where the insured is a male whose place of employment is away from his residence, confinement within the house and medical attention therein, if preceded by at least one week's confinement to bed, shall be sufficient." After having paid the plaintiff sick benefits for seven weeks, the insurance company refused to make any further payments to him, because, it was averred, he was not confined to his bed or house. The district judge found as a fact that the plaintiff's illness incapacitated him from work of any kind, and while the plaintiff frequently visited the office of his attending physician for treatment, the judge construed the word "confined" as used in the policy to mean inability to do work rather than physical inability to leave the house. The supreme court thinks that this interpretation was correct, especially as the plaintiff was totally incapacitated for seven weeks and was paid benefits therefor, and because of the provision with regard to the insured being a male.

Epidemic (Lethargic) Encephalitis Not Chargeable to Employment

(Dehn v. Kitchen et al., Workmen's Compensation Bureau (N. D.), 209 N. W. R. 364)

The Supreme Court of North Dakota says that it has not found a case in the books similar to this one, which it believes stands alone. The proceeding was instituted under the workmen's compensation act, by the plaintiff, to recover for the death of her husband. From a decision of the workmen's compensation bureau denying an award, she appealed to the district court, which rendered a judgment in her favor. The plaintiff's husband was a carpenter who had been in the employ of a firm of contractors, and who had been engaged in doing some work in connection with the remodeling of a hotel and a café maintained in connection with it. To all appearances he was in good health up to the 16th of the month, when he complained that his head felt "stuffed"; on the night of the 17th, he complained of being tired, and on the 18th was unable to go to work. In the forenoon of the 18th a physician was called, and found him in a semicomatose condition, whereupon he was removed to a hospital. He died on the evening of the 20th. The testimony indicated that when the man was working in the café, the condition found was what it "usually is when you come to take out old woodwork in a hotel or restaurant," as stated by one witness, who noticed that much insect powder had been used, and that mice and rats had visited the place. The premises were dusty; so much so, as some of the witnesses testified, that it was difficult to distinguish faces or features except at close range. In general, however, the testimony did not disclose any other peculiar or unusual conditions. Considering all the medical testimony and the evidence which it was contended had any tendency to show that death resulted from an injury received in the course of the employment, the supreme court does not think that the testimony, or any logical and fair inferences that might be drawn therefrom, showed with the reasonable probability which the law demands that the form of encephalitis (of the lethargic type) from which the man died was contracted in the course of his employment. The witness who testified as an expert in behalf of the defendant frankly admitted that one must necessarily deal entirely in the field of speculation in determining where the man acquired the germs and the resultant disease that caused his death. On elementary principles, awarding of compensation cannot be made in such a situation. Wherefore the judgment of the district court for the plaintiff is reversed, and the action ordered dismissed.

Curious Anomaly in Kansas Crime Act as to Abortion

(Sate v. Keester (Kan.), 246 Pac. R. 685)

The Supreme Court of Kansas, in reversing a judgment of conviction of the defendant physician of manslaughter in the first degree, says that it notes the curious anomaly in the Kansas crimes act in this respect: One who wilfully commits any act intended to cause an unlawful abortion of a woman, in the early stages of her pregnancy, before the quickening of the fetus, is guilty of manslaughter in the first degree if the woman dies as a result of such unlawful act, while a similar unlawful act perpetrated on a woman in the later stages of her pregnancy, after the quickening, "when she is pregnant with a quick child," says the statute, is guilty of manslaughter in the second degree if the woman dies as a result of such unlawful act. However, this anomaly is one that concerns the legislature, not the judiciary; and this court must expound and apply the statutes as it finds them.

When the defendant is expressly and singly charged with the felony of causing the death of a woman by committing an abortion on her while she was pregnant with a quick child, with the unlawful intent to destroy such child, which offense is specifically defined and denounced by the crimes act as manslaughter in the second degree, the defendant so charged cannot be convicted of the crime of manslaughter in the first degree; and a verdict, judgment and sentence against the defendant for the latter offense are void.

Rules of Law—Not Liable for Negligence of Dentist

(Nelson v. Sandell et al. (Iowa), 209 N. W. R. 440)

The Supreme Court of Iowa, in affirming a judgment for the defendants, a physician and a dentist who sued jointly for alleged malpractice, says that a physician is bound to bring to the service of his patient and apply to the case that degree of knowledge, skill, care and attention ordinarily possessed and exercised by practitioners of the medical profession under like circumstances and in like localities. He does not impliedly guarantee results. It is not the mere failure to effect a cure that determines the practitioner's liability, and whether he used the skill and care required is, of necessity, to be determined from the expert testimony of those who are competent to say what skill and care ought, according to the ordinary standards of the profession, to be used in a given case. In other words, whether the defendant exercised the degree of care and skill required of him cannot be determined from the testimony of laymen or non-experts, since it is only those learned in the profession who can say what should have been done, or that what was done ought not to have been done.

The mere recommendation by one physician of another does not make the one liable for the malpractice of the other. This has been held to be true in cases in which one physician advises an operation, and, with the consent of the patient, arranges for it to be performed by another, a competent surgeon, whom he assists. And when the physician in charge of a patient calls a surgeon into the case to operate and assists in the operation by doing what he is directed by the surgeon to do, it has been held he is not liable for negligence in the operation, in the absence of negligence in recommend-

ing the surgeon or on his own part in assisting him. It is well settled that, generally speaking, a physician who merely administers an anesthetic to a patient who is operated on by another is not liable for the negligence of the operating surgeon.

While the skill and knowledge required of a physician and of a dentist are the same in degree, they are obviously different in character. They must each possess and exercise the knowledge, skill and care ordinarily possessed and exercised by practitioners of their particular art in like localities, but the physician is not required to have or exercise the peculiar skill or knowledge required of the dentist, nor is the latter bound to possess the knowledge essential to the general practice of medicine or surgery.

The most that the testimony in this case tended to show was that the defendant physician directed the plaintiff to go to the defendant dentist for the purpose of having an embedded and impacted wisdom tooth extracted, and that the plaintiff employed the dentist for that purpose and employed the defendant physician to administer the anesthetic. Her statement that the physician consented to look after her interests in the operation was not susceptible of the construction that he thereby agreed to be responsible for the dentist's negligence. At most he was to "help" the dentist. The testimony did not have a tendency to show a joint employment of the defendants to extract the tooth, or to establish any relation between them by virtue of which the physician would be liable for alleged negligence of the dentist. The physician did not undertake to extract the tooth, or to have it extracted by the dentist. There was not any relation of partnership or agency between them. Without evidence tending to establish either negligence on the part of the defendant physician or his responsibility for negligence of the dentist, if he was negligent, the court rightly directed a verdict in favor of the defendant physician.

Adult with Intelligence of Child of from Seven to Nine Years

(Chriswell v. State (Ark.), 283 S. W. R. 981)

The Supreme Court of Arkansas, in affirming a judgment of conviction of murder, says that testimony was not presented to warrant the court in submitting the issue of insanity to the jury. The testimony of the witnesses on this issue tended to prove that the appellant, after he arrived at the years of maturity, possessed the intelligence only of a child from 7 to 9 years of age. But an adult with the intelligence of a child from 7 to 9 years of age would be mentally capable of committing a crime, unless it was shown by a preponderance of the evidence that such a person was insane under the tests laid down by this court in several cases. In other words, when an adult person has the intelligence of a child from 7 to 9 years of age, that fact alone cannot be made the test as to whether he is insane and therefore not capable of committing a crime under the rules and tests announced by the court in the cases referred to.

Interrogation of Physician About Prescription

(Humber v. State (Ala.), 108 So. R. 646)

The Court of Appeals of Alabama says, in this homicide case, that the prescription about which a physician was interrogated was the best evidence of what it called for. Had it been introduced in evidence, the physician might have interpreted it to the jury, if that had been necessary in order to enable them to understand it. A proper predicate was not laid for the introduction of secondary evidence, and the court did not err in declining to allow the physician to read to the jury what he asserted was a copy of the alleged prescription. It appeared that the prescription was in a drug store in the city of Columbus, in the state of Georgia. The trial of this defendant occurred in Russell County, Ala., just across the river from Columbus. The fact that the prescription was in an adjoining state did not render the secondary evidence of its contents admissible. It did not appear that any effort was made to obtain the written prescription by deposition, nor was it shown that it could not have been obtained by that means, had the defendant attempted so to do.

Society Proceedings

COMING MEETINGS

American College of Physicians, Cleveland, Feb. 21-25. Dr. G. M. Piersol, 1913 Spruce Street, Philadelphia, Secretary General.
American Society for the Control of Cancer, New York City, March 5. Dr. T. M. Debevoise, 26 Broadway, New York City, Secretary.
Florida Medical Association, West Palm Beach, April 5-6. Dr. Shaler Richardson, 111 W. Adams Street, Jacksonville, Secretary.
Pacific Coast Surgical Association, Del Monte, California, Feb. 25-26. Dr. E. L. Gilcreest, Fitzhugh Building, San Francisco, Secretary.

THE SOUTHERN SURGICAL ASSOCIATION

Thirty-Ninth Annual Session, held at Biloxi, Miss., Dec. 14-16, 1926

Treatment of Acute Pelvic Inflammation (Gonorrheal)

DR. LUCIUS E. BURCH, Nashville, Tenn.: There are three favorable locations in the female genitalia for the lodgment of the gonococcus, Skene's and Bartholin's glands, and the closed canal of the cervix. In a series of forty cases, I have used the following simple operation for the eradication of the focus of infection in the cervix: The cervix is brought as near the vaginal outlet as possible. Then it is incised with the cautery through its center, anteriorly and posteriorly to the internal os. The gonococcide is then applied to the open surface by means of a gauze pack left in place for twenty-four hours. It is then removed and a vaginal douche is used twice a day for twenty minutes. The packing is replaced from every other to every third day. The following germicides have been used: mild silver protein, 20 per cent; mercurochrome-220 soluble, 20 per cent; strong silver protein, 10 per cent; trinitrophenol, 5 per cent; tincture of iodine, zinc chloride, 50 per cent, and acriflavine. The penetration of each of these is now being worked out. Diathermy and fulguration have been used in a few cases with little benefit. Sacral anesthesia is the method of choice; however, if the patient shows marked fear or nervousness, gas is used. Ethylene is contraindicated. Four patients left the hospital without our consent and with positive smears; two of these returned to the outpatient department and were treated until cured. If the pelvic masses were small, the patient was allowed out of bed at the end of the third day, provided the temperature was normal. Each case was followed for at least two months in either the hospital or the outpatient department. A patient was not considered well unless a negative smear was obtained before and, most important, after the second menstruation following operation. As this operation has been used only since May, 1926, I am unable to report its effect on pregnancy. Protein therapy was used to hasten the absorption of pelvic masses. Five cubic centimeters of fat free milk was injected into the gluteal region as an initial dose. On the third day following, 7 cc. was injected, and every third day 10 cc., until the mass disappeared. In a year's time, 265 injections of milk have been given with only one abscess occurring. The masses, as a rule, decreased much more rapidly in those cases that showed leukocytosis, a rise of temperature, or both, than in those in which a reaction was absent. After the reaction passes off, in from twelve to twenty-four hours, the patient has a sense of well being. Five patients had pronounced symptoms of so-called obstructive dysmenorrhea, and since operation menstruation has been free from pain. Two had slight hemorrhages following the operation, at intervals of ten days and twelve days, respectively. In one case of double phlebitis, an intravenous injection of mercurochrome-220 soluble was given; the pain and swelling in the limbs quickly disappeared, and the smear became negative. The intravenous injection of mercurochrome in uncomplicated cases did not have any effect. Following the operation advocated the cervix assumes its normal contour, and when healing is complete nothing is left but a linear scar on the anterior and posterior lips.

The Present Status of Ureteral Stricture Work

DR. J. N. BAKER, Montgomery, Ala.: In the very old and very chronic cases, I employ dilation and lavage at intervals of from ten days to two weeks, until the infection has dis-

appeared. On the completion of this preliminary treatment, I insist that the patient return at regular intervals—two or three months—for ureteral dilation.

Roentgenologic Simulants of Gastric Cancer

DR. A. B. MOORE, Rochester, Minn.: Benign new growths of the stomach are rare, but they do occur. A neoplasm that would be inoperable if malignant may be operable if benign. When the patient is young or seems scarcely ill, notwithstanding a large gastric lesion, syphilis should be considered. It may avert a useless operation. There should be active cooperation with the clinician by personal conference, not by an exchange of brief memoranda. A diagnosis of cancer can never be too well founded.

Benign Tumors of the Stomach

DRS. DONALD C. BALFOUR and EARL F. HENDERSON, Rochester, Minn.: In fifty-eight cases of benign tumor of the stomach encountered at operation, the tumor was removed in fifty-seven, and exploration only was carried out in one case, that of polyposis involving the whole stomach. Patients with marked anemia were given suficient transfusions to raise the percentage of hemoglobin to a satisfactory level and, when necessary, the operation was performed under local anesthesia. Of the thirty-six cases in which the tumor was the only lesion, the tumor was removed by excision alone in seventeen, and in the remainder (excepting one case of exploration) the segment of the stomach containing the tumor was resected. The situation of the tumor determined the best method of approach. The procedure used most frequently was transgastric excision through an incision in the anterior wall and division of the pedicle by the cautery. In the larger tumors, the possibility of malignant degeneration makes partial gastrectomy advisable. We have had at least one case in which carcinoma developed at the site of the attachment of the pedicle. In the uncomplicated benign tumors, operative mortality did not occur. In a case in which the primary condition was carcinoma of the stomach, death from bronchopneumonia occurred six days after operation.

Formation of Urethra in Hypospadia by Grafting Mucous Lining of Appendix

DR. STUART MCGUIRE, Richmond, Va.: The cure of hypospadia consists essentially of three steps; the correction of the deformity of the penis; the formation of a new urethra from the glans to the hypospadiac opening, and the connection of the two channels at the point where they met. In three cases I have made a new urethra from the mucous membrane of the vermiform appendix. The outer coats of the appendix are easily peeled off and a tube of mucous membrane is left. A stab wound is made in the glans penis at the site of the normal urethral opening, and a short transverse incision is made through the skin just anterior to the hypospadiac opening. A large trocar and cannula is forced the length of the penis beneath the skin until its point emerges at the incision at the hypospadiac opening. The trocar is withdrawn, leaving the cannula in place. The appendicular tube is put in its place. The circular edges of the two ends of the graft are everted and sutured by several silk stitches to the mucous membrane of the glans above and to the skin at the base of the penis below. The method proved successful. With appropriate after-treatment, the new urethral canal remained patent.

Heliotherapy in Surgical Tuberculosis

DR. NATHANIEL ALLISON, Boston: Our experience at the New England Peabody Home for Crippled Children has demonstrated that so-called heliotherapy is essential to the proper treatment of surgical tuberculosis. Heliotherapy in our hands is somewhat similar to that practiced at Leysin. We believe that it is made up of the following constituent factors: rest, good food, fresh air, surgical protection to diseased areas, happy surroundings and light, both sunlight and artificial light. We have also employed transfusion of blood with benefit in many instances. This combined effect of many factors produces good results, because by it the resistance of the individual to tuberculosis is raised to a point that represents a lessening of the power of the bacillus to invade new territory, and a heightening of the power of the tissues to wall off and to fibrose the areas already occupied. The end-results of heliotherapy are as yet to be estimated. In children with bone and joint tuberculosis, the time element may be largely disregarded. On the contrary, in adults the time element is of great significance, especially when ultimate cure implies the final ankylosis of a joint. I do not believe that extensively diseased joint areas may be reconstructed by the sun cure, but in children treated early in the disease, the joints may be saved to useful function. Consequently, I believe that operative surgery is not indicated in tuberculosis of the bones and joints until methods of heliotherapy have been employed for long periods.

Duodenitis

DRS. E. STARR JUDD and GUNTHER W. NAGEL, Rochester, Minn.: Duodenitis is a surgical and pathologic entity characterized by circumscribed or diffuse inflammation of the first portion of the duodenum without the formation of chronic ulcer. The clinical picture and roentgenologic data are almost identical with those of chronic duodenal ulcer. A niche is not seen in duodenitis. The association between duodenitis and chronic duodenal ulcer is close. All chronic ulcers probably originate from duodenitis. The reason why duodenitis is not always followed by chronic ulceration has not been determined.

Treatment of Fractures of the Femur

DR. ROBERT L. RHODES, Augusta, Ga.: I have treated eight cases of fracture of the femur by the use of Buck's extension. Complications or deaths did not occur. With one exception, all the patients were able to walk within six months' time without the use of a crutch or cane. Neck fractures and trocanteric fractures did equally well. Eleven cases have been treated by the same method in the hospital. Union was satisfactory in every instance. These cases represent a group that could be termed "bad risk" patients, their physical state being such as to preclude the application of the Whitman or other methods of treatment.

Suture Technic for Abdominal Closure in Cases of Drainage

DR. FRANCIS REDER, St. Louis: In an infected wound the abdominal closure cannot be completely effected, as there must remain an opening for drainage. The part of the wound not implicated in drainage should receive the same careful attention in the accurate apposition of its structures as a case free from sepsis, the patient's condition permitting. The drainage opening, if certain precautions are taken, should cause little concern as to the future functional results of the abdominal wall. By these precautions, I mean the introduction of a certain type of suture at the time of operation into the aponeurotic structures bordering the drainage opening. These sutures are placed in such a manner that, after the removal of the drain, traction on them in opposite directions will cause an accurate apposition of the divided structures. For want of a better term, I have called this suture the "twin mattress suture." The material used is silkworm gut. For the posterior rectus sheath, iron dyed silkworm gut, on account of its being black, is used. For the anterior rectus sheath, the undyed silkworm gut is employed. It is necessary to use suture material of a different color to simplify the identification of the fascial structures carrying the different sutures. The suture is introduced through the skin about three-fourths inch from the wound margin. It passes through the anatomic structures and penetrates the posterior rectus sheath, including the peritoneum, an eighth of an inch from its edge. The suture is then carried across the wound and engages the opposite posterior rectus sheath, piercing it and the peritoneum from within out and about an eighth of an inch from the aponeurotic margin. This suture incorporates about half an inch of the body of the posterior rectus sheath, and, piercing it from without in, it is again carried across the wound to the opposite posterior sheath, which it penetrates, including the peritoneum from within out about an eighth of an inch from its margin. It then pierces the anatomic structures in its path as it emerges on a line a half inch below

the point of entry. The opposing suture is placed in a similar manner. In introducing the opposing suture, an interval of an eighth of an inch should be allowed for tissue play. The technic for placing the sutures in the anterior rectus sheath is similar to that of the posterior sheath. In this region the only structure interposing between skin and aponeurosis is fat. In a wound 3 inches long, which can be considered a large drainage wound, three "twin mattress sutures" will answer the purpose. After the sutures are in place, the strands stretching across the wound are pulled aside to facilitate the introduction of the drain. The ends of the sutures are properly cared for, so that they can be readily assembled and tied over a small roll of gauze after the drain has been removed. This method of suturing has given excellent results in cases in which there was great liability of postoperative hernia.

Lateral Ventral Hernia

DR. ALEXIUS MCGLANNAN, Baltimore: A hernia semilunaris Spigelii came under my care. The patient was a white man, aged 50. Eight months before admission, after playing a game of golf, he noticed a little puff on the left side of the abdomen, which he thought became larger when his stomach was distended with gas. On the left side of the abdomen, about an inch above the level of the umbilicus and 2 inches outside the border of the rectus muscle, there was a smooth, firm, immovable tumor, which was situated under the external oblique muscle. The mass was not tender and manipulation did not cause pain. A diagnosis was made of fibroma of the abdominal wall situated under the external oblique muscle. Under ethylene anesthesia, an incision was made over the tumor. A fibrolipoma was found between the two oblique muscles. Connected with the deep surface of the tumor was a tubular process of peritoneum about one-fourth inch in diameter, which went down between the muscle fibers of the internal oblique. These fibers were separated and retracted to expose the neck of the tube passing through an opening in the transversalis aponeurosis, just at its junction with the fleshy bundles. An adherent epiploica and a loop of large intestine could be seen through the sac moving with each respiratory action. The sac was opened, the adherent bowel freed and dropped back. The neck of the sac was then closed with catgut, and the remainder excised and removed with the lipoma. The patient recovered without any complications and has been relieved of his symptoms.

Primary Endothelioma of Cervical Lymphnodes

DR. CHARLES W. FLYNN, Dallas, Texas: One case is reported. Primary endothelioma of the cervical lymphnodes is a more common neoplasm than is generally supposed. The disease is limited to one or a small group of glands, more commonly the superficial cervical lymph nodes of the anterior triangle than the more inaccessible cervical glands. Biopsy is the only reliable method of diagnosis at this time, and that requires the services of a highly competent pathologist. A suspicious tumor of the neck should always be subjected to biopsic diagnosis early in its development. Primary endothelioma of the cervical lymph nodes is now a pathologic entity and should become a clinical entity. If an early diagnosis is once definitely made and it is determined that the growth is not the generalized form, an operation should be resorted to immediately, and if properly performed will probably result in a complete cure.

Fundamental Principles Underlying the Operative Cure of Inguinal Hernia

DR. M. G. SEELIG, St. Louis: In children and in muscular young adults with oblique hernias having a narrow necked sac, one may feel a distinct sense of assurance if one has merely accomplished a high ligation of the sac. One should always, however, in addition to this, suture the outer flap of the external oblique to Poupart's ligament. If the edges of the transversalis fascia are available, added assurance will attend this approximation. If the hernia is larger or if it is of the direct variety, high ligation of the sac alone is not by any means a reliable guarantee against recurrence. Here the fascia transversalis should be diligently sought for. If found, and the defect in it securely closed, the major part of the cure has been accomplished. If not found, then, using McArthur's technic, the conjoined tendon (when present) or the lower portion of the rectus sheath and the red muscles are sutured to Poupart's ligament with a fascial strip. Under all circumstances, the inner flap of the external oblique muscle is next sutured to Poupart's ligament with chromic gut and the outer flap of the external oblique muscle, when possible, is imbricated over this suture. The cord is transplanted in all cases. Sometimes it is not possible to imbricate the outer flap of the external oblique muscle. Under such circumstances, this suture is dispensed with, the skin and subcutaneous suture being closed over the cord. If the hernia is unmanageably large or has recurred several times, it will be necessary to adopt the Gallie technic and weave the defect in the abdominal wall with numerous fascia lata strips. A word of caution should be uttered regarding the necessity of protecting the underlying viscera and the deep epigastric artery when suturing the transversalis fascia.

Tumors of the Carotid Body

DRS. RAYMOND P. SULLIVAN and ALEXANDER FRASER, New York: Two cases of true neoplasm arising from the carotid body have been presented, representing two different types of growth described in the literature. One of these is a neuroblastoma, the other a paraganglioma. Both may become malignant, and as the early stages of growth constitute practically the only favorable time for operation, early extirpation is recommended. The control of hemorrhage, operative and postoperative, constitutes the most difficult problem connected with the treatment.

What Is Behind the Deformed Face

DR. VILRAY P. BLAIR, St. Louis: Until we are capable of attaining the now impossible in facial restorations, the man doing this work should carefully study, recognize and give due and appropriate consideration to the patient's motives and point of view. If he does not, he is neglecting one of the most important elements in the study of the disease he assumes to treat, for the disability of this class of handicapped is due chiefly to their mental reaction.

A Point in Technic for the Supravaginal Removal of a Myomatous Uterus with a Foul Uterine Discharge

DR. THOMAS S. CULLEN, Baltimore: When carcinoma of the body of the uterus exists, I make it a rule to sew up the cervix from below prior to going in above and removing the entire uterus. The vagina is then packed with gauze so that the uterus is pushed well up into the abdomen. Recently I had a patient who had a myomatous uterus and a foul uterine discharge. She had suffered from hemorrhages, and her hemoglobin was 15 per cent. After a purine diet of liver, kidney and pancreas, the hemoglobin rose to 40 per cent. Notwithstanding the use of radium, bleeding again commenced. The hemoglobin dropped to 35 per cent and it was necessary to pack. When I saw her, there was a most fetid vaginal discharge and I was afraid that an abdominal operation might cause a general peritonitis. On account of the patient's precarious condition, I felt it wiser to amputate through the cervix because this procedure would save a good deal of time. On the other hand, there was danger that the uterine contents might escape as we cut through the cervix. I finally decided to pass a mattress suture through the cervix and tie it, thus blocking the cervical canal above the point of amputation. After tying off the ovarian and uterine vessels and isolating the cervix, I carried the stitch from before backward through the cervix. Then, after rethreading the loose end, I carried it back through the other side of the cervix. It was much easier to introduce both ends of the suture from before backward. I then tied the suture on the posterior surface of the cervix. The uterus was now amputated below the joint of suture, and not more than a drop of fluid escaped from the cervical canal. The patient made a satisfactory recovery. The suture is easily placed and this procedure, I think, will reduce the chance of infection in such cases to a minimum.

(To be continued)

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American Journal of Ophthalmology, Chicago

9: 873-939 (Dec.) 1926

Enucleation of Eyeball with Implantation of Endogenous Cartilage. C. H. Bagley, Baltimore.—p. 873.

Traumatic Enophthalmos: Case. F. A. Morrison and C. W. Rutherford, Indianapolis.—p. 876.

Intracranial Hypertension Without Choked Disk. A. Magitot, Paris.—p. 880.

Band Keratitis. A. J. Bedell, Albany, N. Y.—p. 887.

Recurrent Keratitis Profunda from Maxillary Sinusitis. A. G. Wilde, Washington, D. C.—p. 892.

Refraction Under Cyclodamia. D. Smith, Bridgeport, Conn.—p. 896.

Diagnostic Methods: Perimetry. W. F. Swett, San Francisco.—p. 903.

American Journal of Physiology, Baltimore

79: 1-253 (Dec.) 1926

*Studies on Autodigestion: I. Fate of Organs Implanted into Duodenum. H. Necheles, J. Ling and F. Fernando, Peking.—p. 1.

*Id.: II. Rôle of Trypsin and "Antitrypsin." N. Necheles and F. Fernando, Peking.—p. 9.

Intragastric Leukopedesis. H. C. Hou, Peking.—p. 28.

Studies in Incubation: I. Effect of Low Temperatures Previous to Incubation on Hatchability of Eggs Set. J. E. Dougherty, Berkeley, Calif.—p. 39.

Early Growth Rates of Chickens with Special Reference to Ultraviolet Light. H. D. Goodale, Williamstown, Mass.—p. 44.

Regulation of Respiration: V. Continuous Thermo-Electric Method of Recording Volume Flow of Blood. R. Gesell and D. W. Bronk, Ann Arbor, Mich.—p. 61.

Id.: VI. Continuous Electrometric Methods of Recording Changes in Expired Carbon Dioxide and Oxygen. R. Gesell and D. A. McGinty, Ann Arbor, Mich.—p. 72.

Comparative Capacity of Blood and of Tissue to Absorb Carbonic Acid. L. A. Shaw, Boston.—p. 91.

*Prevention of Fatal Parathyroid Tetany by Oral Administration of Magnesium Chloride. J. H. Sloan, Chicago.—p. 100.

Periodic Variations in Blood Pressure, Pulse and Physical Efficiency Test. D. Truesdell and G. Croxford, Long Island, N. Y.—p. 112.

Metabolic Gradient of Nonrhythmic Strips from Different Levels of Turtle Heart. R. L. Howard and T. Sollmann, Cleveland.—p. 119.

Regional Gradient of Turtle Heart: Effect of Isotonic Sucrose Solution on Tone, Rhythm and Contractility. R. L. Howard and T. Sollmann, Cleveland.—p. 126.

*Regulation of Flow of Bile: II. Effect of Eliminating Sphincter of Oddi. G. E. Burget, Portland, Ore.—p. 130.

Effects Produced on Weight, Respiration and Temperature by Adding Desiccated Whole Suprarenal Gland and Desiccated Suprarenal Cortex to Diets of Normal Pigeons. O. W. Barlow, Cleveland.—p. 135.

*Cretinism and Myxedema Produced Experimentally in Swine. H. D. Caylor and C. F. Schlotthauer, Rochester, Minn.—p. 141.

*Deposition of Dyes, Iron and Urea in Cells of Renal Tubule After Their Injection into Its Lumen: Glomerular Elimination of Same Substances. J. M. Hayman, Jr., and A. N. Richards, Philadelphia.—p. 149.

Effects of Injecting Anterior Hypophysial Fluid on Course of Gestation in Rat. H. M. Teel, Cambridge, Mass.—p. 170.

Effects of Injecting Anterior Hypophysial Fluid on Production of Placentomata in Rats. H. M. Teel, Cambridge, Mass.—p. 184.

Superimposed Respirations or Cheyne-Stokes Breathing of Amphibious and Nonamphibious Mammals. P. F. Swindle, Milwaukee.—p. 188.

*Effect of Luxus Consumption of Meat on Voluntary Activity and Growth of Albino Rat. F. A. Hitchcock, Columbus, Ohio.—p. 206.

Effect of Meat Feeding on Nursing Mother Rats and Rate of Growth of Their Litters. F. A. Hitchcock, Columbus, Ohio.—p. 218.

*Studies of Basal Metabolism in New Orleans. R. Hafkesbring and P. Borgstrom, New Orleans.—p. 221.

*Study of Protein Intake as Indicated by Urinary Nitrogen. P. Borgstrom and R. W. Bost, New Orleans.—p. 229.

*Dietary Studies in New Orleans in 1925. P. Borgstrom, R. W. Bost and R. Hafkesbring, New Orleans.—p. 237.

*Cutaneous Excretion of Nitrogenous Material in New Orleans. R. W. Bost and P. Borgstrom, New Orleans.—p. 242.

*Effect of Increased Diet on Basal Metabolism in New Orleans. P. Borgstrom, R. Hafkesbring and R. W. Bost, New Orleans.—p. 245.

Fate of Organs Implanted into Duodenum.—Necheles, Ling and Fernando undertook to ascertain under what conditions organs implanted into the duodenum or upper jejunum might be digested. Kidney, liver and omentum implanted into the duodenum or upper jejunum of dogs remain in most cases undigested for from three hours to seventy-three days. Intraperitoneal injections of trypsin solutions, inoculation of fresh sterile pancreas and artificial necrosis of the pancreas itself seem to facilitate the digestion of a number of omental implants. Parathyroidectomy, subcutaneous injection of methylguanidine and croton oil by mouth do not influence the fate of the implants. It seems probable that certain toxins of the pancreas are necessary to induce digestion of living tissue. This may explain the occurrence of digestion in necrosis of the pancreas, after intraperitoneal injection of pancreatic juice and inoculation of pancreatic tissue.

Rôle of Trypsin and Antitrypsin.—As the result of their investigation of the rôle of trypsin and antitrypsin, Necheles and Fernando conclude that trypsin does not act as an antigen, and that the trypsin inhibiting factor of the serum is not an antibody. This confirms the work of Young, Opie, Jobling and others. It is shown that the titer is not dependent on the viscosity of the serums, or on changes in the surface tension produced by saponin. It is suggested that the "antitryptic" titer is the product of two components, one a proteolytic ferment (protease) and the other a tryptic inhibitory substance. The survival of living tissue (omental implants) exposed to the action of trypsin does not depend on immunization against the ferment, but on some unknown factor which may be local.

Prevention of Parathyroid Tetany by Morphine Sulphate.—Sloan asserts that completely thyroparathyroidectomized dogs can be successfully carried through from four to five successive attacks of tetany occurring over periods of from four to seven days by means of morphine sulphate, which is a known depressant of the central nervous system. The action of morphine sulphate in this respect is similar to that of magnesium chloride given orally to prevent the occurrence of tetany after complete thyroparathyroidectomy. When morphine is used to control parathyroid tetany, the blood calcium levels do not always seem to parallel the condition of the animal; i. e., the blood calcium level during one attack of tetany may be higher than that of a previous tetany-free period. Sloan is convinced that morphine gives promise of being a valuable emergency agent for the control of parathyroid tetany, either before other more slowly acting therapeutic agents take effect or at a time when other methods should not be tried because of the danger of inducing a fatal attack of tetany.

Regulation of Flow of Bile.—Burget finds that drugs that affect the tonus of the intestinal musculature affect the resistance encountered in the duct to the same extent in the absence of the sphincter of Oddi as when the sphincter is intact. The sphincter of Oddi is probably not at all concerned in the regulation of the flow of bile, at least in those animals in which the duct enters the duodenal musculature obliquely. A reciprocal activity between the gallbladder and the sphincter that would influence the flow of bile is improbable. The tonicity of the duodenal musculature, when the duct enters it obliquely, constitutes a sphincter-like mechanism that prevents in the presence of a gallbladder a continuous flow of bile. Further evidence is presented indicating that bile flow is regulated by intra-abdominal pressure and tonicity and peristalsis of the duodenum.

Experimental Cretinism and Myxedema.—Caylor and Schlotthauer state that when thyroidectomy was performed on swine before puberty, very striking symptoms of thyroid deficiency result—much more so than when the operation was performed after puberty. The thyroidectomized swine apparently were hypersusceptible to disease. From thirty-two to forty-four days after operation, when symptoms of thyroid deficiency were well established, four swine developed mild ulcerative stomatitis and within a few days died from pneumonia. These swine had been kept in the same pens with the control animals, yet the controls remained healthy and normal. Caylor and Schlotthauer aver that swine are excellent animals for the production of experimental cretinism and myxedema. Parathyroid tetany did not develop in any of the animals operated on, and this fact shows that one of the frequent causes of mortality following thyroidectomy can be obviated.

Estimating Secretory Activity of Renal Tubules.—The conclusion is reached by Hayman and Richards that results derived from the microscopic study of fixed sections of the kidney, taken after intravenous injections of microscopically identifiable substances, cannot form valid evidence of secretory activity of renal tubules, except in the case of substances which can be proved to be present in the urine without having passed through the glomerular membrane. At present such substances are unknown.

Effect of Meat Diet on Growth.—Hitchcock presents evidence which shows that female rats that were nursing litters weighed more and raised larger and healthier litters when they were fed meat in addition to an adequate, balanced ration. The rate of growth of the new-born rats was faster when their mothers received meat.

Basal Metabolism in New Orleans.—In comparing average minimum values with the standards in use (Du Bois, Harris-Benedict and Dreyer), Hafkesbring and Borgstrom found that the metabolism of persons living in New Orleans is definitely lower, the average deviation from these standards being — 18, — 16 and — 14 per cent, respectively.

Protein Intake as Indicated by Urinary Nitrogen.—Twenty-four hour urines were collected by two subjects for one year. These gave an average of 10 Gm. of nitrogen for 70 Kg. of body weight. The results show seasonal variation when the subjects ate at home, but questionable when they ate at boarding houses. Some daily variation is shown, probably as a result of working conditions. Borgstrom and Bost suggest that climatic conditions are the probable cause of the lowered protein intake.

Dietary Studies in New Orleans.—A series of experiments was carried on by Borgstrom et al. to show the number of calories eaten by a normal person living in a warm climate. Results show that none of the values obtained are less than those given by Rubner, and two are close to those given by Atwater; that is, the calorific intake in the South does not vary much from that of the North, but the protein intake is lower.

Cutaneous Excretion of Nitrogenous Material in New Orleans.—Experiments made by Bost and Borgstrom show that induced perspiration and perspiration from walking runs about 75 mg. of nitrogen per square meter of body surface. The protein content of food eaten in the twelve hours previous to the experiments does not seem to alter the amount of nitrogenous bodies excreted per square meter of body surface to any appreciable extent. The morning and afternoon parts of the day show a much larger nitrogenous excretion per square meter per hour than does the twenty-four hour period. The relationship of the cutaneous nitrogen excretion to the total intake is discussed, especially in reference to summer weather.

Effect of Increased Diet on Basal Metabolism.—Borgstrom et al. show that with increased food intake, as shown by increased urinary nitrogen, there is a very considerable fluctuation in the basal metabolism, when taken at a definite time from the last meal. The possible causes of this fluctuation are discussed.

American Journal of Roentgenology and Radium Therapy, New York

16: 405-506 (Nov.) 1926

Osteopetrosis. R. G. Karshner, Los Angeles.—p. 405.
Roentgenoscopy of Colon. W. O. Upson, Battle Creek, Mich.—p. 419.
Cases of Joint Tuberculosis. C. W. Blackett, Boston.—p. 427.
Pathology of Breast Cancer: Study of Metastasis. B. T. Simpson, Buffalo.—p. 431.
Carcinoma of Breast: Results of Treatment. R. B. Greenough, Boston. —p. 439.
Reaction of Pleura and Lungs to Roentgen Rays. A. U. Desjardins, Rochester, Minn.—p. 444.
Sweet Improved Eye Localizer Chart: How to Avoid Misinterpretation. F. B. Stephenson, Denver.—p. 470.
Water Supply for Photographic Dark Room. D. R. Bowen, Philadelphia. —p. 472.
Leaded Rubber Aprons. D. R. Bowen, Philadelphia.—p. 473.

American Journal of Surgery, New York

1: 245-322 (Nov.) 1926

Hemorrhoidectomy. J. M. Lynch, New York.—p. 245.
*Biologic Antisepsis. J. H. Kellogg, Battle Creek, Mich.—p. 249.
Precautions Against Postoperative Acidosis in Children. J. Sobel, New York.—p. 257.
Use of Substitute or Emergency Muscles for Transplantation in Foot. W. G. Wright, Boston.—p. 266.
Sacral Anesthesia in Treatment of Stricture of Urethra. W. S. Pugh, New York.—p. 268.
Hernia Operations in Aged. L. F. Watson, Chicago.—p. 271.
Combination of Methods in Management of Peritonitis. W. L. Secor, Kerrville-on-the-Guadalupe, Texas.—p. 274.
Carcinoma of Both Breasts in Woman Under 20 Years of Age. L. W. Kruss and B. S. Kline, Cleveland.—p. 277.
Acute Mesenteric Thrombosis; Resection; Recovery: Case Report. F. C. Warnshuis, Grand Rapids, Mich.—p. 281.
Clinical Application of Experimental Studies in Intestinal Obstruction. H. B. Stone, Baltimore.—p. 282.
Enterostomy in Acute Ileus—Time Element: Preliminary Report. F. T. Van Beuren, Jr., New York.—p. 284.
Chronic Temporomaxillary Subluxation. J. H. Morris, New York.—p. 288.
Pyloric Resection for Ulcer of Duodenum. J. H. Morris, New York. —p. 288.
Resection of Stomach for Carcinoma: Three Years After Operation. J. H. Morris, New York.—p. 289.
Torsion of Omentum. J. H. Morris, New York.—p. 290.
Torsion of Great Omentum: Resection. J. H. Garlock, New York.—p. 290.
Traumatic Rupture of Spleen: Splenectomy. J. H. Garlock, New York. —p. 291.
Compound Fracture of Tibia Involving Knee and Ankle Joints: Early Result. J. H. Garlock, New York.—p. 292.
Acute Intestinal Obstruction: Enterostomy with Recovery. B. L. Coley, New York.—p. 292.
Jejunostomy for Acute Ileus. R. Colp, New York.—p. 294.

Biologic Antisepsis.—According to Kellogg, biologic antisepsis is the natural method of combating sepsis. Its underlying principle is prophylaxis—the prevention of the development of putrefactive and pathogenic organisms by the maintenance of a vigorous growth of aciduric organisms. It has been demonstrated that certain carbohydrates render invaluable aid in creating and maintaining the conditions most favorable for the defense of the organism from pathogenic bacteria. The best carbohydrates for this purpose are lactose and dextrin so blended as to make a smooth and adhesive magma when water is added in the right proportions. This combination makes a simple but most effective biologic antiseptic. Biologic antisepsis is of equal value in both internal and external conditions, and has been used with success in offensive, discharging wounds or sores; varicose ulcers; operation wounds; colostomy wounds; pruritus vulvae and ani; proctitis and colitis; skin and scalp disease, and gynecologic and obstetric practice.

American Journal of Syphilis, St. Louis

10: 537-682 (Oct.) 1926

Diagnosis and Treatment of Syphilis of Nervous System. E. L. Hunt, New York.—p. 537.
Syphilis of Central Nervous System. J. Smith, New York.—p. 545.
Juvenile Paresis: Infantilism. H. A. Bunker, Jr., New York.—p. 553.
Syphilis Among Mental Defectives. F. R. Hall, Rome, N. Y.—p. 563.
Syphilitic Lesions of Mouth. P. A. O'Leary, Rochester, Minn.—p. 567.
Treatment of Congenital Syphilis. H. Heiman, New York.—p. 577.
*Syphilis and Periodic Health Examination. W. A. Bloedorn, Washington, D. C.—p. 581.
Bismuth. W. H. Gordon and M. S. Feldman, Detroit.—p. 588.
Reactivation of Arsphenamine in Treatment of Syphilis. C. N. Myers and J. A. Macgregor, New York.—p. 604.
*Roentgen-Ray Evidence in Diagnosis of Gastric and Pulmonary Syphilis. C. D. Enfield, Louisville, Ky.—p. 621.
Treatment of Syphilis. M. Baff, Worcester, Mass.—p. 625.
Intra-Abdominal Syphilis. J. W. Shuman, Los Angeles.—p. 629.
*Results of 2,800 Microscopic Slide Precipitation Tests for Syphilis, with Clinical and Serologic Comparison. B. S. Kline, S. Littman and A. B. Mill, Cleveland.—p. 636.

Periodic Health Examinations.—The periodic health examination is regarded by Bloedorn as being an increasingly important measure for safeguarding health and increasing longevity. One of the primary objects of such an examination is to detect evidence of incipient disease before it has produced any considerable injury and when it is most amenable to therapeutic measures. Syphilis looms up as one of the most important causes of morbidity and mortality and offers a particularly fertile field for the health examiner. Every

health examination should include as part of its routine a careful and thorough search for evidence of syphilitic disease. If the presence of syphilitic disease is determined, the patient should have the benefit of an examination of the cerebrospinal fluid before a reassurance can be given as to what inroads the disease already has made and as to the prognosis. The health examiner must be well versed in the modern treatment of syphilis that he may advise the patient correctly. He should be familiar with the disastrous effects of excessive treatment as well as the harm resulting from inadequate treatment.

Roentgen-Ray Evidence of Gastric and Pulmonary Syphilis.—In Enfield's opinion, neither gastric syphilis nor pulmonary syphilis offers a sufficiently characteristic roentgenographic appearance to justify a diagnosis from roentgen-ray examination alone.

Slide Precipitation Test for Syphilis.—Kline and his associates point out that the microscopic slide precipitation test for syphilis agreed with the condition of the patient in 94.9 per cent of 2,809 tests, virtually the same agreement as that of a sensitive Wassermann test and the Kahn test. The microscopic slide precipitation test agreed or relatively agreed with one Wassermann test in 92.5 per cent of 2,375 tests, with another Wassermann test in 90.5 per cent, and with the Kahn test in 95.9 per cent of tests.

Annals of Medical History, New York

8: 331-455 (Dec.) 1926

Worthies of Cambridge Medical School. H. Rolleston, Cambridge, England.—p. 331.
Francesco Redi (1626-1697). Physician, Naturalist, Poet. R. Cole, New York.—p. 347.
Some Medical Medals and Tokens. E. B. Krumbharr, Philadelphia.—p. 360.
Presentation of Microscopic Preparations Made from Some Original Tissue Described by Thomas Hodgkin, 1832. H. Fox, Philadelphia.—p. 370.
Abraham Chovet. W. S. Miller, Madison, Wis.—p. 375.
Paleopathology: XVIII. Tumors of Head Among Pre-Columbian Peruvians. R. L. Moodie, Chicago.—p. 394.
Id.: XIX. Pleistocene Examples of Traumatic Osteomyelitis. R. L. Moodie, Chicago.—p. 413.
Worship of Asklepios: Tholos and Theater. I. S. Wile, New York.—p. 419.
Ayurvedic Medicine in Ancient and Medieval Ceylon. C. A. Wood, Srinagar, Kashmir.—p. 435.

Archives of Internal Medicine, Chicago

38: 685-834 (Dec.) 1926

*Analysis of Heart Sounds. H. B. Williams and H. F. Dodge, New York.—p. 685.
*Mechanism of Pain in Gastric and in Duodenal Ulcer: II. Production of Pain by Means of Chemical Irritants. W. L. Palmer, Chicago.—p. 694.
*Chronic Biliary Tract Disease. J. G. Mateer and W. S. Henderson, Detroit.—p. 708.
*Relation of Menstruation to Permeability of Skin Capillaries and Autonomic Tonus of Skin Vessels. W. F. Petersen and G. Milles, Chicago.—p. 730.
*Hyperthyroidism, Myxedema and Diabetes. R. M. Wilder, Rochester, Minn.—p. 736.
Cardiac Capacity Determined by Standardized Effort. J. B. Wolffe, Philadelphia.—p. 761.
*Basal Metabolism in Beriberi. S. Okada and E. Sakurai, Tokyo, Japan.—p. 770.
*Insulin by Mouth. H. R. Miller, New York.—p. 779.
Growth of Long Bones in Childhood. H. A. Harris, St. Louis.—p. 785.
*Primary Carcinoma of Thymus. I. I. Lemann and J. Smith, New Orleans.—p. 807.
*Spectrophotometric Analysis of Color of Skin. C. Sheard and G. E. Brown, Rochester, Minn.—p. 816.

Analysis of Heart Sounds.—Williams and Dodge give the results of their study of normal and abnormal heart sounds with the electric stethoscope. This apparatus consists essentially of an electromagnetic detector or transmitter for picking up the sound vibrations, an amplifier for magnifying the minute electrical vibrations produced in the transmitter, and a group of electric filters for narrowing down the frequency bands of observation in order to reduce the amount of extraneous and interfering noises outside the frequency range of interest. The complex electrical waves thus produced are much more easily handled for study and analysis than the original sound waves, in view of the greater facility of controlling electrical energy.

Rôle of Chemical Irritants in Production of Peptic Ulcer.—Experimental data are presented by Palmer regarding the rôle of chemical irritants in the production of ulcer distress. Typical ulcer distress can be initiated in ulcer patients under suitable conditions by: (*a*) the reinjection of the gruel obtained at the time of distress, (*b*) solutions of hydrochloric acid of similar concentrations (and therefore entirely physiologic) or by stronger solutions, (*c*) solutions of sulphuric and acetic acids and of sodium hydroxide. Such distress is not produced in normal stomachs by similar injections. Distress so produced is relieved by neutralization of the chemical irritant, or by partial removal of the irritant and neutralization of the remainder. Hydrochloric acid is the irritant normally present in the gastric content which constitutes an adequate stimulus to the pain-producing mechanism of a sensitive peptic ulcer. The distress of gastric carcinoma can be similarly induced at times. The distress typical of the other abdominal conditions studied has not been induced by acid injections up to the present time, or, if already present, it has not been altered by them. Palmer failed to secure evidence of hyperesthesia of the gastric mucous membrane or of pain as the result of hyperchlorhydria with an intact gastric and duodenal mucosa.

Diagnosis of Chronic Biliary Tract Disease.—Mateer and Henderson present the results of a detailed analysis of the diagnostic data of ninety-four consecutive patients with chronic biliary tract disease who were subjected to operation.

Menstruation and Permeability of Skin Capillaries.—Examinations made by Petersen and Milles by means of the blister method have shown that the normal rate of permeability of skin capillaries is approximately 0.72 for the intermenstrual period, 0.75 for the premenstrual, and 0.77 for the menstrual period. In the premenstrual period the skin tonus is parasympathetic; this seems to be promptly reversed with the onset of menstruation. In the premenstrual and menstrual period, the blood pressue average is higher than during the intermenstrual period. The relation of these alterations to tuberculosis resistance is discussed.

Hyperthyroidism, Myxedema, Diabetes.—Wilder has made a study of thirty-eight cases of frank diabetes combined with states of hyperthyroidism and of one case of diabetes associated with myxedema. The association of diabetes and hyperthyroidism occurs with a frequency of about 1.1 per cent of all cases of hyperthyroidism. Exophthalmic goiter is less frequently complicated by diabetes (0.6 per cent of all cases) than adenomatous goiter with hyperthyroidism (2 per cent). The requirement of insulin is increased by hyperthyroidism. Iodine, administered as compound solution, in a dosage of from 20 to 60 minims (1.2 to 3.7 cc.) daily, to patients suffering from combined exophthalmic goiter and diabetes, reduces the intensity of the diabetes. This effect parallels that of the basal metabolic rate. Iodine has little influence or none at all on the course of diabetes associated with adenomatous goiter with hyperthyroidism, and is without effect in cases of uncomplicated diabetes. Thyroidectomy is almost always followed by a considerable gain in tolerance in diabetes complicated by hyperthyroidism. A case of juvenile diabetes is cited to illustrate the palliative effect of myxedema developing in diabetes. When the basal metabolic rate of this child was restored to normal, the previous diabetic state returned.

Basal Metabolism in Beriberi.—These two cases reported by Okada and Sakurai showed distinct diminution in the basal metabolism during the course of the disease. The marked feature appearing parallel with this diminution was the paralysis of the lower limbs. The authors have also found such diminution in the basal metabolism in other diseases with paralysis or atrophy.

Insulin by Mouth.—Miller's observations make it seem likely that insulin given in absolute alcohol or 95 per cent alcohol solution (total solution not to be below 85 per cent alcohol), within keratinized capsules, lowers the blood sugar level of diabetic patients.

Primary Carcinoma of Thymus.—Lemann and Smith report what is said to be the seventeenth case of carcinoma of the thymus on record. There were metastases into the lungs, the liver and the vertebrae. The presenting symptom was pain in the back. The diagnosis of malignant intrathoracic disease was made possible only by the appearance of evident metas-

tases in the back and the discovery by roentgen-ray examination of a shadow in the thorax. The intrathoracic growth did not give rise to any local signs or symptoms. It is suggested that the possibility of thymus neoplasm be borne in mind when there is roentgenographic evidence of abnormality in the mediastinum. The possibility of this diagnosis is strengthened when metastases are found.

Analysis of Skin Color.—Sheard and Brown assert that the spectrophotometric method of analysis of skin color furnished the basis for a relatively simple but bloodless method of depicting certain characteristics of the blood at the peripheral portions of the body.

Illinois Medical Journal, Oak Park

50: 437-512 (Dec.) 1926

Spondylitis of Unknown Etiology Simulating Typhoid Spine. S. C. Woldenberg, Chicago.—p. 463.
Weekly Clinical Conference. G. H. Mundt, Chicago.—p. 467.
Selling Society to Membership and to Prospects. H. M. Camp, Monmouth.—p. 469.
Endocrine Family. J. H. Hutton, Chicago.—p. 473.
Postoperative Wound Infections. M. Thorek, Chicago.—p. 477.
Alleged Back Injuries. L. G. Harney, E. St. Louis.—p. 483.
Ectopic Pregnancy. C. Culbertson, Chicago.—p. 487.
Pyelitis. D. N. Eisendrath, Chicago.—p. 488.
Ambulatory Treatment of Tuberculosis. E. Loewenstein, Vienna.—p. 495.
Closed Method of Treating Empyema. R. B. Bettman, Chicago.—p. 501.
Management of Resistant Syphilis. F. Herb, Chicago.—p. 502.
Deviated Nasal Septum. E. M. Mikkelsen, Chicago.—p. 506.

Journal of Comparative Neurology, Philadelphia

42: 165-348 (Dec. 15) 1926

Variability in Growth of Fetal Central Nervous System as Measured by Biometric Constants. H. L. Dunn, Baltimore.—p. 165.
Stria Terminalis and Amygdala in Brain of Opossum (Didelphis Virginiana). H. B. van der Sprenkel, Chicago.—p. 211.
Forebrain of Sphenodon Punctatum. J. Cairney, Chicago.—p. 255.

Journal of Comparative Psychology, Baltimore

6: 399-458 (Nov.) 1926

Influence of Repeated Rotations on Decerebrate and on Blinded Squabs. B. G. King, Berkeley, Calif.—p. 309.
Survival of Maze Habit After Cerebellar Injuries. K. S. Lashley and D. A. McCarthy, Minneapolis.—p. 423.
Effects of Cerebral Destruction on Sexual Behavior of Male Rabbits: III. Frontal, Parietal and Occipital Regions. C. P. Stone, Stanford University, Calif.—p. 435.
Effect of Unreliability of Measurement on Difference Between Groups. R. Tryon, Berkeley, Calif.—p. 449.

Journal of Experimental Medicine, Baltimore

44: 735-889 (Dec. 1) 1926

Immunologic Relationships of Cell Constituents of Encapsulatus Pneumoniae (Friedländer's Bacillus). L. A. Julianelle, New York.—p. 735.
Experimental Analysis of Bacterial Allergy. H. Zinsser and T. Tamiya, Boston.—p. 753.
*Tissue Digesting Enzyme (Histase) of Streptococci. M. Frobisher, Jr., Baltimore.—p. 777.
*Bacterium Pneumosintes in Influenza in New York City in 1926. F. L. Gates, New York.—p. 787.
*Experimental High Jejunostomy in Dog: Blood Chemical Studies. R. L. Haden and T. G. Orr, Kansas City, Kan.—p. 795.
Etiology of Heartwater: III. E. V. Cowdry, New York.—p. 803.
Relative Reaction Within Living Mammalian Tissues. VI. P. Rous, New York.—p. 815.
Id.: VII. P. Rous and W. W. Beattie, New York.—p. 835.
*Filtrable Virus in Submaxillary Glands of Guinea-Pigs. R. Cole and A. G. Kuttner, New York.—p. 855.

Tissue Digesting Enzyme of Streptococci.—An extracellular, proteolytic enzyme has been observed by Frobisher in more than thirty strains of hemolytic streptococci. The enzyme is readily demonstrable in sterile filtrates of cooked meat cultures. The enzyme resembles trypsin in its action. Streptococci from a variety of sources, bovine, human and otherwise have shown varying degrees of proteolytic activity. The name histase is proposed for this enzyme.

Bacterium Pneumosintes in New York Influenza Epidemic.—The presence of *Bacterium pneumosintes* has been demonstrated by Gates in nasopharyngeal washings from two patients in a sporadic outbreak of clinical influenza in New York City in March, 1926. Two strains of bacteria morphologically similar to *Bacterium pneumosintes*, but differing in certain cultural characters, and two other anaerobic filter-passing organisms were also isolated from the nine patients examined. The blood serum of sixteen among seventeen persons convalescent from clinical influenza, and of six supposedly normal persons, agglutinated one or more strains of *Bacterium pneumosintes*.

Effect of Experimental High Jejunostomy.—The effect of high jejunostomy on the life and chemical changes of the blood of dogs is reported by Haden and Orr. Sodium chloride solution administered in sufficient quantity after high jejunostomy prolongs the life of dogs. It is asserted that such experimental observations as these warrant a careful clinical study of the effects of high jejunostomy so frequently used in the treatment of acute intestinal obstruction.

Filtrable Virus.—Cole and Kuttner present additional evidence that the presence of cells with nuclear inclusions in any lesion indicates that the injury is probably due to an infective agent belonging in the group of filtrable viruses.

Journal of Industrial Hygiene, Baltimore

8: 499-542 (Dec.) 1926

Miners' Nystagmus: Effect on Working Capacity. J. Ohm, Westphalia, Prussia.—p. 499.
New Type of Nose Mask for Protection Against Metallurgic Dusts and Fumes. L. G. Dunlap, Anaconda, Mont.—p. 513.
Control and Treatment of "Nickel Rash." F. M. R. Bulmer, Toronto, and E. A. Mackenzie, Port Calborne, Ont.—p. 517.
*Colorimetric Determination of Minute Amounts of Nickel. Potassium Di-Thio-Oxalate as Sensitive Reagent. L. T. Fairhall, Boston.—p. 528.

Detection of Nickel Rash.—Potassium di-thio-oxalate as a reagent for the colorimetric determination of nickel, Fairhall asserts, possesses many advantages over existing methods. It not only is more sensitive than any other colorimetric method for nickel analysis, but also permits the accurate estimation of small fractions of a milligram. The method of analysis is described in detail and the effects of differences in acid concentration are discussed.

Journal of Metabolic Research, Morristown, N. J.

6: 1-401 (July-Dec.) 1924

*Respiratory Metabolism in Diabetics: Influence of Insulin. C. Holten, Copenhagen.—p. 1.
*Blood Chemistry and Blood Pressure Standards: I. Effect of Tropical Residence. W. D. Fleming, Manila, P. I.—p. 87.
Systolic Blood Pressure of Normal Rabbit Measured by Modified Van Leersum Method. R. Dominguez, Cleveland.—p. 123.
Effect of Double Suprarenalectomy on Systolic Blood Pressure of Non-anesthetized Rabbit. J. M. Rogoff and R. Dominguez, Cleveland.—p. 141.
Disturbance of Inorganic Metabolism in Acute Indigestion of Milch Cows. B. Sjollema and J. E. Van Der Zande, Utrecht, Holland.—p. 159.
*Fat Soluble Vitamins: XXI: Comparative Amounts of Vitamin A and Antirachitic Factor in Butter Fat and Cod Liver Oil. J. H. Jones, H. Steenbock and M. T. Nelson, Madison, Wis.—p. 169.
*Interrelation of Insulin and Other Gland Extracts in Metabolism. P. J. Cammidge and H. A. H. Howard, London.—p. 189.
*Absorption of Insulin from Rectum in Human Diabetics. S. Peskind, Cleveland.—p. 207.
Acetone Bodies. A. R. J. Dungan, Morristown, N. J.—p. 229.
*Extirpation and Exclusion of Spleen: I. Changes in Blood, Platelets and Blood Volume. J. Loesch, L. J. Witts and A. Zimmermann, Morristown, N. J.—p. 297.
*Id.: II. Changes in Tissues. J. Loesch and L. J. Witts, Morristown, N. J.—p. 339.
*Id.: III. Changes in Platelet Structure. J. Loesch and L. J. Witts, Morristown, N. J.—p. 369.
*Studies of Fermentable Blood Sugar After Parenteral and Rectal Administration of Glucose. W. Franke and R. J. Wagner, Morristown, N. J.—p. 375.
Respiratory Exchange in Turtles. F. G. Hall, Milton, Wis.—p. 393.

Respiratory Metabolism in Diabetes.—An investigation was made by Holten of eighteen patients, the majority of whom had severe diabetes mellitus. Determinations (116) of the respiratory metabolism in these patients are reported. Furthermore, a series of control experiments concerning the metabolism at different times of the day is given.

Effect of Tropical Residence on Blood Pressure.—Blood chemistry and blood pressure data are presented by Fleming for a group of 200 Americans of various lengths of residence in the tropics. The blood pressures of groups of 500 American and 590 Filipino soldiers are also presented. Neither blood chemistry nor blood pressure is affected by the length of stay in the tropics. The systolic blood pressure in Manila aver-

ages 10 mm. lower than the normal for temperate climates for the Americans and 3 mm. lower for the Filipinos examined. The greater lowering for foreigners is explained by adaptation on the part of the natives to tropical conditions. This lowered blood pressure is due to a decreased peripheral resistance to circulation. The incidence of increased blood pressure and high blood chemistry values is greater with increased age.

Antirachitic Factor in Butter Fat.—Using the time of incidence as well as the cure of ophthalmia as criteria, it was determined by Jones et al. that cod liver oil contains from 10 to twenty times as much vitamin A as butter fat. In antirachitic factor, the difference in potency was much greater: 0.05 Gm. of cod liver oil was far more effective in preventing rickets than 10 Gm. of butter fat, which gives them a relative value of approximately 1 to 200. It is stated that in light of the knowledge that under certain conditions the antirachitic factor as well as vitamin A is required for normal growth, the statement that cod liver oil may be 250 times as potent as butter may be taken to refer more to the antirachitic factor than to vitamin A.

Interrelation of Insulin and Other Gland Extracts in Metabolism.—Taken as a whole, the results of the observations made by Cammidge and Howard show that under the influence of insulin the tissues in a fasting animal utilize more carbohydrate in place of the protein and fat on which they were depending, but that when insulin is administered to a previously fed animal there is only an alteration in the rate and not in the nature of the metabolism. Although epinephrine, like insulin, increases the respiratory quotient in the fasting state, the effects of the two on metabolism are antagonistic, the simultaneous injection of suitable doses producing the same metabolic changes as in a normal animal. The influence of insulin on metabolism is also neutralized by pituitary extract; but as this alone does not affect the respiratory quotient or oxygen consumption, the means by which this result is brought about is obviously different and probably depends on a direct chemical interaction between the two hormones and not on an opposition in their functions in metabolism as is the case with insulin and epinephrine. Thyroid and insulin apparently do not have direct influence on each other, nor are the effects of the one on metabolism influenced by the other; but the action of insulin on the utilization of carbohydrate is very materially increased by parathyroid. In fed animals, the injection of epinephrine, pituitary, or thyroid extract was found to give rise to the appearance of more or less sugar in the urine; the glycosuria was prevented, however, in all instances when insulin was administered at the same time.

Absorption of Insulin from Rectum.—The results obtained by Peskind indicate that absorption of insulin from the rectum is possible under the influence of certain reagents. The degree of absorption, however, is too variable and uncertain in the human being to permit of the rectal method of administration for clinical purposes.

Effect of Splenectomy on Blood.—Loesch, Witts and Zimmermann noted that extirpation of the normal spleen is followed by anemia and increased resistance of the red cells to hemolysis. The blood picture after ligation of the arteries or the veins of the spleen is not materially different from that after complete removal, but the most profound disturbances were seen after ligation of the veins. Blood volume determinations show that the severity of the anemia is to a large extent masked by oligemia, and that the actual amount of circulating hemoglobin may be reduced to a third. Signs of repair are present, such as reticulated red cells, Jolly bodies and normoblasts, myelocytes and immature polymorphonuclears and juvenile platelets; frequent erythroblastic, leukocytic and thrombocytic crises occur. The number of platelets per cubic millimeter is decreased for a short time immediately after operation in which the spleen is extirpated or excluded from the circulation. Later, bizarre fluctuations occur during which the platelets are at times considerably lower, at times considerably higher than the normal number, and two months after operation a great excess of platelets is present.

Effects of Splenectomy on Tissues.—Loesch and Witts believe that the anemia after splenectomy is not due to absence of a splenic hormone, as an identical anemia occurs when the spleen is merely excluded from the circulation. It appears to be the result of excessive hemolysis in the hyperplastic abdominal lymph glands. These glands hypertrophy to take over the splenic function of preparation of effete red cells for destruction in the liver. In the early stages red cell breakdown is carried too far in them, and the hemoglobin is broken down into forms in which it becomes lost to the organism. Later the glands more accurately assume the splenic function, iron excretion decreases, and the anemia is repaired. The bone marrow hypertrophies in a few days after removal of the normal spleen. Its greatest activity corresponds to the period of greatest anemia, two months after the operation. It is still hyperplastic some months after the anemia has apparently recovered, and it is during this stage that the organism is specially sensitive to blood-destroying influences. Apparently the bone marrow first covers the anemia by working to the limits of its capacity, and it is only later that the processes of blood destruction and repair return to the normal rate.

Effect of Splenectomy on Platelets.—In the course of experiments on extirpation and exclusion of the spleen, marked changes were noted by Loesch and Witts in the structure of the platelets. During periods of accelerated platelet production, nucleated platelets appeared in the circulation. These are believed to have arisen directly from the primordial marrow cell without the intervention of the megakaryocyte.

Effect of Glucose Injections on Blood Sugar.—As the blood sugar curves after peritoneal glucose injections show that the fermentable sugar is transformed into higher nonfermentable carbohydrates only after a certain time, Franke and Wagner conclude that this combination does not occur in the plasma but takes place only after the sugar has been transported through the organs which perform the synthesis of free glucose into higher carbohydrate complexes.

Michigan State Medical Society Journal, Grand Rapids

25: 619-684 (Dec.) 1926

Neurolabyrinthitis of Focal Infection Origin in Case with Plus Four Wassermann. G. W. Mackenzie, Philadelphia.—p. 619.
Blood Transfusion. A. A. Strauss, Chicago.—p. 623.
Diphtheria. B. Bernbaum, Detroit.—p. 627.
Span of Life. W. A. Evans, Chicago.—p. 632.
*Sunlight as Disinfectant. F. M. Meader, Detroit.—p. 636.
Some Residua of Epidemic Encephalitis. W. H. Marshall and M. S. Chambers, Flint.—p. 645.
*Comparative Study of Pregnancy and Labor in Primiparae in Relation to Age. L. E. McCaffrey, Ann Arbor.—p. 649.
Use of Mixed Vaccine in Treatment of Pertussis. E. P. Russell, Battle Creek.—p. 651.
Psychoses Associated with Goiter. C. E. Boys, Kalamazoo.—p. 653.
Résumé and Evaluation of Symptoms and Signs in Diagnosis of Toxic Goiter. H. J. V. Berg, Grand Rapids.—p. 656.
Secondary Abdominal Pregnancy with Intra-Uterine and Extra-Uterine Placenta: Case. D. H. Duffie, Central Lake.—p. 659.

Sunlight as Disinfectant.—A number of experiments are quoted by Meader which demonstrate the lethal effect of sunlight on bacteria. The advice given is meant especially for health officers. He says that the health officer may, with confidence, rely on sunlight and on sky light to destroy bacteria, if they are exposed to it for two hours during the middle of the day. Withdrawing the draperies and raising the shades, even if the windows are closed, if the sunlight and sky shine can enter, will gradually bring about the destruction of bacteria. Bacteria live a long time in dark rooms, hallways and basements when they are damp. The sun cannot affect bacteria in these places. Hence, the importance of building supervision, so that buildings shall not be erected which are not adequately lighted by sunlight. Store basements cannot rely on incandescent lamps to disinfect the air and woodwork, except only as drying is useful.

Pregnancy and Labor in Primiparas of Various Ages.—Five hundred consecutive cases of primiparous labor were analyzed by McCaffrey with reference to a possible effect of age on pregnancy. There were 250 women under and 250 over 16 years of age. Deformed pelves occurred more often in

group 1 (fourteen cases) than in group 2 (fifty-six cases). Preeclamptic toxemia was present more than twice as often in the younger group (seven to twelve). Not one case of nephritic toxemia was found in group 1, but it occurred in five cases in group 2. Eclampsia was found to be present slightly more often in the second group (five to one). Gonorrhea was a complication of pregnancy in twenty-five cases of the second group and in two in the first, while syphilis was present six times in the first group, and eighty-two times in group 2. Age does not seem to have any appreciable effect on the position of the fetus in utero. The total number of lacerations of the perineum was the same. However, the deeper type of tear was much more frequent in the older group, while the tissues are more elastic in the younger women. The duration of labor was shorter in the younger patients by more than two hours and shorter in the whole series than is usually believed. The morbidity rate was the same in the two groups. The death rate was practically the same in the two groups. Youth does not have any appreciable effect on pregnancy and its sequelae, except that it makes the outcome a little less strenuous.

New Jersey Medical Society Journal, Orange

23: 597-672 (Dec.) 1926

Roentgenologic Diagnosis of Gallbladder Disease. J. Roemer, Paterson.—p. 597.
Radiation Therapy of Tuberculosis. E. A. May, Newark.—p. 608.
Home Treatment of Tuberculosis by Artificial Pneumothorax. M. J. Fine, Newark.—p. 614.
Gleanings from Forty Years of General Practice. G. B. Philhower, Nutley.—p. 621.
Certified Milk. E. G. Wherry, Newark.—p. 627.

New Orleans Medical and Surgical Journal

79: 377-476 (Dec.) 1926

Head Injuries Marked by Intracranial Tension. F. W. Parham, New Orleans.—p. 377.
Some More Common Mental Diseases. W. E. Clark, Jackson, Miss.—p. 389.
Immediate Prognosis of Major Operations. O. C. Cassegrain, New Orleans.—p. 396.
Essential Arterial Hypertension. J. B. Howell, Canton, Miss.—p. 401.
Localized Influenzal Affections of Head. R. Jackson, Baton Rouge, La.—p. 409.
Ectopic Pregnancy. J. M. Alford, Oklahoma City.—p. 413.
Stewart's Incision in Radical Surgery of Breast. R. E. Stone, New Orleans.—p. 417.
Why We Do Not Eliminate Malaria More Rapidly. J. A. LePrince, Memphis, Tenn.—p. 420.
Hematuria. P. J. Kahle, New Orleans.—p. 422.
Atypical Glaucoma. J. B. Stanford, Memphis.—p. 425.
Industrial Ophthalmology. C. A. Bahn, New Orleans.—p. 429.
Intracranial Hemorrhage of Newly Born. C. J. Bloom, New Orleans.—p. 435.
Id.: J. Signorelli, New Orleans.—p. 448.

Oklahoma State Medical Association Journal, Muskogee

19: 315-335 (Dec.) 1926

Gallbladder in Relation to Right Sided Pain. M. Rogers, Clinton.—p. 315.
Right Abdominal Pain "Kidney." R. M. Howard, Oklahoma City.—p. 317.
Right Side Pain and Appendicitis. W. H. Livermore, Chickasha.—p. 318.
Ileus, Partial and Complete. P. B. Champlin, Enid.—p. 319.
Right Abdominal Pain of Thoracic Origin. L. J. Starry, Oklahoma City.—p. 323.
Central Nervous Disease and Pain in Right Side of Abdomen. A. D. Young, Oklahoma City.—p. 324.
Hernia. W. P. Fite, Muskogee.—p. 325.

Southern Medical Journal, Birmingham, Ala.

19: 851-916 (Dec.) 1926

Influence of Malaria on Progress of Civilization. C. C. Bass, New Orleans.—p. 851.
*Roentgen-Ray Treatment of Certain Localized Infections. F. M. Hodges, Richmond, Va.—p. 857.
Toxemia of Scarlet Fever. C. W. Duval, New Orleans.—p. 858.
*Common Sense and Infant Feeding. A. A. Walker, Birmingham, Ala.—p. 860.
Some Measures for Prevention of Diphtheria. W. C. Davison, Baltimore.—p. 865.
*Wilson's Disease and Allied Conditions. E. F. Wahl, Thomasville, Ga.—p. 869.
Case of Xeroderma Pigmentosum and Case of Granuloma Fungoides. R. W. Mendelson, New Orleans.—p. 873.
Essential Qualifications of Public Health Worker. R. K. Flannagan, Richmond, Va.—p. 875.
Cooperation. E. D. Martin, New Orleans.—p. 880.
Responsibility of Obstetrician. C. J. Miller, New Orleans.—p. 882.
Review of One Thousand Obstetric Cases. W. E. Levy, New Orleans.—p. 886.
Results of Four Hundred and Seventy Operations on Gallbladder. T. B. Johnson and A. A. Pearre, Frederick, Md.—p. 889.
Some Otolaryngologic Problems. R. C. Lynch, New Orleans.—p. 893.
Medical Education and Its Product. W. H. Moursund, Dallas, Texas.—p. 896.

Roentgenotherapy of Localized Infections.—Hodges regards the roentgen ray as being probably the method of choice in the treatment of the majority of carbuncles. Pain is usually relieved by it, drainage is increased, and the duration of the disease is shortened. The deep seated type of carbuncle that occurs on the back of the neck should probably be excised surgically before too much tissue is involved. If they are seen after necrosis has begun, these cases also respond to irradiation. In chronic infections of the parotid, irradiation is certainly of very definite value and should be used in every case before surgery is considered. In ischiorectal abscess, early erysipelas and subacute wound infections, the roentgen ray appears to be a helpful adjunct to other methods of treatment, and should be tried when it is practicable to do so.

Common Sense and Infant Feeding.—Walker emphasizes the necessity for every physician who attempts to treat babies to familiarize himself thoroughly with the simple fundamental facts of nutrition, and, with these facts as a basis, to use some simple method of feeding which is universally available and which can be carried out by the average mother. This method, in Walker's opinion, will be simple dilution of boiled cow's milk with added sugar. He suggests that textbooks should simplify that part devoted to infant feeding and try to present the subject to the student in such a way that he will not be so terrified at the apparent complexity of the subject as to throw up his hands in despair and learn it from the detail man.

Wilson's Disease.—In the case described by Wahl, there was presented a hypokinetic-hypertonic syndrome presenting poverty of movement, slowness and clumsiness of movement, muscular rigidity, marketed disturbance of the automatisms concerned in swallowing, in speech and in walking, and emotional instability as a pathologic neurologic phenomenon in association with evidence of hepatic disease. The outstanding points of variation between the case here reported and the original descriptions of Wilson are: (1) the absence of tremor; (2) the obesity; (3) the age of the patient (50), and (4) the evidence of the involvement of certain parts of the nervous system in addition to the lenticular nuclei.

Southwestern Medicine, Phoenix, Ariz.

10: 469-514 (Nov.) 1926

Differential Diagnosis of Toxic Goiter. A. B. Cooke, Los Angeles.—p. 469.
Surgical Treatment of Tuberculosis. W. R. Lovelace, Albuquerque, N. M.—p. 472.
Surgical Principles in Treatment of Obstructions at Bladder Neck. B. W. Wright, Los Angeles.—p. 477.
Pathology of Renal Tuberculosis. W. G. Schultz, Tucson, Ariz.—p. 479.
Control of Rabies. C. W. Gerber, Las Cruces, N. M.—p. 482.
Industrial Welfare Work at Dawson. P. K. Carson, Dawson, N. M.—p. 486.
Birth and Death Registration. J. G. Holmes, Alamogordo, N. M.—p. 489.
Iodized Oil in Tuberculous Sinuses. C. O. Giese, Colorado Springs.—p. 490.

Tennessee State Medical Association Journal, Nashville

19: 145-178 (Oct.) 1926

Question of Adequate Supply of Rural Physicians in Tennessee. W. J. Breeding, Nashville.—p. 145.
Rural Medical Situation. M. Smith, Ardmore.—p. 151.
Relation of Physician to Public Health. K. S. Howlett, Franklin.—p. 153.
Pernicious Anemia. W. H. Witt, Nashville.—p. 161.
Nine Cases of Tularemia in Tennessee. S. F. Strain, Memphis.—p. 168.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Radiology, London

31: 409-468 (Nov.) 1926

*Roentgen-Ray Observations in Aortic Regurgitation. G. W. Holmes.—p. 409.
Radiographic Control of Healing of Tuberculous Lesions of Lung. Jaquerod.—p. 425.
Classification of Roentgen Rays from Therapeutic Standpoint. R. Proust and L. Mallet.—p. 426.
Indirect Action in Radiotherapy. A. Rosselet.—p. 428.
Radiotherapy and Formation of Fistulas. De Backer.—p. 433.
*Disinfection of Cancer Cervicis Uteri. J. Valcke.—p. 437.
*Theory About Pathogenesis of Coxa Plana and Other Manifestations of "Local Dyschondroplasia." P. G. K. Bentzon.—p. 439.
Principles of Modern Light Therapy. S. Rothman.—p. 443.
Action of Roentgen Rays on Evolution of Pregnancy and Development of Fetus. De Nobele and Lams.—p. 449.

Roentgenoscopy of Heart and Aorta.—A method of study of the heart and aorta by means of roentgen rays is reviewed by Holmes. The literature on the diagnosis of aortic regurgitation in relation to its etiologic factor is reviewed. Thirty-four cases of aortic regurgitation of various etiologic factors are discussed, especial emphasis being placed on the roentgen-ray observations in these cases. In this series the roentgen-ray studies proved of distinct value, though not infallible, in the differentiation of the aortic regurgitation of syphilitic, rheumatic, arteriosclerotic and hypertensive origins. The salient points of differentiation are discussed.

Disinfection of Cancer of Uterine Cervix.—Valcke comments favorably on the disinfecting action of chloramine-glycerin. During three successive applications, *Bacillus coli* diminished and cocci disappeared. The disinfecting action of 2 per cent watery solution of mercurochrome is much less (6-8). The cocci appeared to be more sensitive to disinfection by chloramine or by mercurochrome, than *Bacillus coli.* This result confirms former experiments. After the application of a 2 per cent watery solution of chloramine, the use of chloramine-glycerin causes a considerable increase of the germs at the surface of the crater. The application of radium, which somewhat bruised the crater, caused a recrudescence of the infection with *Bacillus coli.* A large Mickulicz drain, filling the whole true pelvis and impregnated daily with chloramine-glycerin, was very well supported during eighteen days; fever was absent, although the daily injection of chloramine-glycerin did not suffice to insure even a relative disinfection of the wick. The addition of autovaccine to the chloramine-glycerin did not change this result.

Etiology of Dyschondroplasia.—Bentzon presents additional evidence to support his statement that the pathologic alterations by coxa plana, osteochondritis dissecans in the knee and in the capitulum humeri, and Köhler's disease in the capitulum of the second metatarsal are caused by an active hyperemia produced by a moderate lesion of the arteries of the bones.

China Medical Journal, Shanghai

40: 1059-1164 (Nov.) 1926

*Night Soil as Fertilizer. F. Oldt.—p. 1059.
Incidence of Nervous Diseases in China. A. H. Woods.—p. 1070.
Early Diagnosis of Trachoma. T. M. Li.—p. 1083.
Stovarsol Poisoning. J. Morgan.—p. 1086.
*Acute Phosphorus Poisoning. P. C. Kiang.—p. 1091.
Laws of Variation and Heredity. A. B. D. Fortuyn.—p. 1101.
Treatment of Fungus Cerebri by Skin Graft. C. Kumm.—p. 1126.
Melanosarcoma of Gums. A. Wong.—p. 1132.

Night Soil a Parasite Carrier.—Information is given by Oldt as to the extent, intensity and importance of both *Clonorchis* and hookworm infestations among Chinese; also as to the source and the methods of infestation, namely, night soil, thereby indicating where eradication should be carried out, and along what lines methods should be devised to prevent infestation.

Detection of Acute Phosphorus Poisoning.—Kiang describes an exceedingly simple test for the detection of free phosphorus. It is termed the "sponge test." An ordinary sponge is soaked thoroughly with the material to be tested, whether it is the ejected matter or the stomach contents of the patient. Then it is given a spasmodic squeeze. If free phosphorus is present, white fumes of the lower oxides of phosphorus will make their appearance. Sometimes it is necessary to resoak the sponge in water before the reaction is obtained, because the pores in the sponge have been densely plugged up with organic matter.

Glasgow Medical Journal

106: 281-336 (Nov.) 1926

*Symptomatology of Headache. J. L. Halliday.—p. 281.
*Case of Unilateral Mydriasis. J. N. Tennent.—p. 306.
Endoscopy and Removal of Foreign Bodies from Air Passages and Upper Food Passages. W. S. Syme.—p. 310.

Headache is Referred Pain.—Examination of forty cases of headache has convinced Halliday that all headaches have certain features in common. He says that headaches are analogous to cases of referred pain, such as are found in conditions like appendicitis, biliary colic and heart disease. They differ from pain referred to the abdominal and thoracic walls only in the ease with which they are provoked. Both are the products of the same two variable factors—first, an alteration in the equilibrium of the primary synapses, and, second, the overflowing of impulses from a neighboring neuron. The synapses of the spinal segments may be considered as comparatively stable and highly resistant, so that all but the most powerful visceral impulses are inhibited from entering the secondary pain tracts of the dorsal cutaneous nerves. On the other hand, the intramedullary synapses of the trigeminal and upper cervical nerves are relatively unstable and have a lower inhibitory power. In a few individuals, the easy loss of equilibrium in these primary synapses is the result of inheritance; in most individuals the natural instability is made manifest by slight abnormalities in the bodily activities. Headache is therefore the commonest of human symptoms, as impulses from a variety of sources, cerebral as well as organic, can readily gain access to the pain tracts in connection with the scalp. The low resistance of the synapses guarding these tracts is probably related to the evolution of vision and the development of the human brain. The synapses guarding the pain tracts of the ophthalmic division of the trigeminal nerve appear to provide a prepotent outlet for impulses liable to overflow. The great majority of headaches are therefore frontal, but the localization of any headache is not an indication of the nature and source of the disturbing impulse.

Unilateral Mydriasis.—The only symptom presented by Tennent's patient was a dilatation of one pupil which was caused by a small piece of steel which, on penetrating the eyeball, did not leave a wound apparent on examination, and which proceeded to gradual destruction of the eyeball until it was recognized and removed with the electromagnet. The patient seemed not to be aware of having sustained an injury to the eye.

Indian Medical Gazette, Calcutta

61: 529-580 (Nov.) 1926

*Tropical Typhus. W. Fletcher and J. E. Lesslar.—p. 529.
Few "Dont's" in Ophthalmic Work. F. F. S. Smith.—p. 531.
*Bismuth Treatment in 700 Cases of Syphilis. C. F. Chenoy.—p. 533.
"Agglutinating" and "Nonagglutinating" Vibrios Found in Human Intestine and in Water: Relationship Between Them. J. W. Tomb and G. C. Maitra.—p. 537.
Types of Mental Disorder. F. Noranha.—p. 540.
*Treatment of Malaria: Isolation. J. N. Leitch.—p. 543.
Effects of Bee Venom. A. R. D'Abreu.—p. 545.
*Treatment of Burns and Scalds by Sterilized Coconut Oil. N. Gopalan.—p. 549.
Use of Sodium Salicylate by Intravenous and Intramuscular Administration. S. C. Roy.—p. 549.
*Cheap and Waterproof Substitute for Plaster of Paris in Outpost Dispensaries. J. M. Khan.—p. 551.
Case of Enormous Ovarian Cyst. G. R. Tambe.—p. 551.
Case of Rupture of Spleen During Attack of Malaria. P. Savage.—p. 552.
Case of Scorpion Bite. M. C. Lang.—p. 553.
Case of Fracture of Calvarium. S. L. Sarkar.—p. 554.

Tropical Typhus.—Fletcher and Lesslar are of the opinion that in Malaya, at least, the disease is carried by a mite or tick that spends a part of its existence on cattle and a part on rodents. Where there are cattle there are usually rats,

and there were large numbers of them in some of the places in the Malay States where cases of tropical typhus occurred.

Bismuth Treatment of Syphilis.—Chenoy relates his experiences with the use of bismuth in the treatment of syphilis. He prefers metallic bismuth because, its absorption rate being uniform, its action is steady and toxic symptoms are not observed. The soluble preparations are nearly all wasted in the treatment of syphilis. The method of administration is simple and does not require skill, but stress must be laid on good technic to avoid pain and discomfort. The only danger to avoid with bismuth is not to inject the drug in the blood stream, as it causes paralysis and death within two hours.

Isolation in Treatment of Malaria.—Leitch contends that the importance of isolation has not received the attention which is its due, and that screening is the ideal way of prevention.

Coconut Oil as Wound Treatment.—When treating cases of burns and scalds of varying degrees of severity, Gopalan applies strips of gauze or lint soaked in boiled coconut oil. Wounds are said to heal rapidly.

Substitute for Plaster of Paris.—Khan uses black gram seeds. They are soaked in water for twelve hours and then rubbed between the palms of the hands in water so as to separate the black pericarp from the white seeds. When the white seeds have been completely separated they are rubbed thoroughly in a pestle and mortar into a fine paste (not too thick). The bandage is soaked in water for ten minutes and the water squeezed out of it. The paste is applied to the surface of the bandage that is not going to be next to the skin. After every turn of the bandage finely powdered cement (such as is used for ordinary building purposes) is rubbed into it so as completely to soak into its meshes. When bandaging is completed, over all the turns another coating of the paste and a coating of cement is applied. The dressing is waterproof, easily procurable in out-of-the-way places and dispensaries, cheap and efficient.

Journal of Laryngology and Otology, Edinburgh

41: 709-780 (Nov.) 1926

Nasal Sinusitis as Cause of Toxemia. W. Willcox.—p. 709.
Paths of Infection to Brain, Meninges and Venous Blood Sinuses from Neighboring Peripheral Foci of Inflammation: III. A. L. Turner and F. E. Reynolds.—p. 717.
Chronic Nonsuppurative Catarrh of Middle Ear and Eustachian Obstructive Catarrh. J. Dundas-Grant.—p. 732.
Bilateral Recurrent Laryngeal Paralysis Associated with Mammary Carcinoma. L. Colledge.—p. 748.
Recurrent Paralysis of Vocal Cord Secondary to Malignant Tumor of Breast. D. R. Paterson.—p. 748.

41: 781-864 (Dec.) 1926

*Cystic Serous Meningitis. G. J. Jenkins.—p. 781.
*Chemistry of Cerebrospinal Fluid in Otitic Meningitis. J. G. Greenfield.—p. 785.
Aqueduct in Bird's Labyrinth: Evolutionary Significance. A. A. Gray.—p. 790.
Angioma of Tonsil. F. C. Omerod.—p. 797.
Probable Pathway of Infection in Case of Gradenigo's Syndrome. J. Adam.—p. 801.

Cystic Serous Meningitis.—Jenkins records the history of two patients who had chronic mastoiditis and had undergone extensive operative treatment. In both cases, the labyrinths were intact. In both, the outstanding feature was the hysterical state, and in both, behind the hysterical phenomena, there was something indicating an organic lesion. At the operation, which consisted of incision of the dura mater between the lateral sinus and the labyrinth, there was a considerable depth of subarachnoid space at the part where the cerebellum is usually in intimate contact with the dura mater, and a free flow of cerebrospinal fluid occurred on making the opening into the space. There was relief of the symptoms within twenty-four hours.

Chemistry of Cerebrospinal Fluid in Otitic Meningitis.—The hypothesis put forward by Greenfield is that so long as the meningitis is limited to a small area, say, round the petrous temporal bone, the percentages of the inorganic salts in the cerebrospinal fluid remain unaltered, whereas when the meningitis becomes more widespread, these percentages tend to approximate those of the blood. This is due to increased meningeal permeability, or breaking down of the barrier between blood and cerebrospinal fluid, which also shows itself in other ways. For example, the fibrin coagulum, which is such a constant feature of meningitic fluids, indicates that the fibrinogen of the blood is allowed to pass the barrier. Similarly, complement and the antibodies, present in the serum, may pass it. Again, dyes, such as methylene blue and sodium fluorescein, have been shown to pass into the cerebrospinal fluid much more readily when meningitis is present. But the passage of such substances into the cerebrospinal fluid is not such a good gage of the extent of the inflammation as the passage back to the blood of such substances as magnesium and chlorides.

Journal of Oriental Medicine, Dairen, Southern Manchuria

5: 57-66 (Nov.) 1926

Mortality Statistics of Japanese in Manchuria. U. Miura.—p. 57.
Intermediate Metabolism in Avitaminosis: III. Y. Jono.—p. 63.
Morphinism: I. Basal Metabolism of Morphine, Opium and Pantopon-Scopolamine Habitués. S. Nishigishi.—p. 64.
*Number of Blood Platelets in Hemorrhagic Smallpox: Significance in Prognosis. S. Hoshizaki.—p. 65.
Injection of Erythrocytes into Peritoneum: Can Such Enter Circulation? K. Yoshitomi.—p. 66.
Interferometric Estimation of Pepsin Ferment. K. Ochiai.—p. 66.

Blood Platelets and Prognosis in Smallpox.—Hoshizaki asserts that the number of blood platelets forms a good basis for the prognosis of smallpox. When they number 100,000 or more, this constitutes a basis for a favorable prognosis.

Naval Medical Association Bulletin, Tokyo, Japan

15: 11-12 (Nov.) 1926

Doubt About Gram-Positivity of Bacillus Welchii. J. Uehara.—p. 11.
Prognosis of Tuberculous Meningitis. I. Sudo.—p. 11.
Roentgen-Ray Diagnosis with Lipiodol. C. Hotta.—p. 12.

Okayama Medical Journal, Okayama, Japan

442: 1159-1292 (Nov. 30) 1926

Physiology of Thyroid and Parathyroid: Their Effect on Sugar Metabolism. II. Y. Takahasi.—p. 1159.
Id.: III. Their Effect on Creatinine and Creatine Metabolism. Y. Takahasi.—p. 1171.
Spleen and Carbohydrate Metabolism: V. Glycogen Formation. A. Noma.—p. 1212.
*Hereditary Anomalies of Eyes of Rabbits. K. Huddi.—p. 1254.
Experimental Studies on Meningogenous Labyrinthitis: III. Medulla Oblongata Following Labyrinthitis. T. Kasai.—p. 1269.

Hereditary Anomalies of Eyes.—Among the anomalies mentioned by Huddi are hydrophthalmus, microphthalmus, bulb cysts and corneal opacities. These were all accompanied by hydrocephalus.

Sei-I-Kwai Medical Journal, Tokyo, Japan

45: 1-14 (Oct.) 1926

Pathologic Anatomy of Bronchiectic Cavity in Cattle in Japan (Fasciolasis Cystica Pulmonum: Parasitic Bronchiectasis). T. Kimura, S. Taguma and Y. Wada.—p. 1.
*Epithelial Formations of Mucous Membrane of Urinary Bladder. I. Watanabe.—p. 8.
Investigation of Sensitization and Protective Action of Substances Affecting Capillaries and of Other Nonelectrolytes on Agglutination of Bacteria, Blood Corpuscles, Etc. K. Kobayaski.—p. 10.
Experimental Studies on Spontaneous Agglutination. Y. Suzuki.—p. 10.
Possibility of Inoculation of Plasmodium Malariae of Human Origin in Animal Tests. M. Yoshino.—p. 11.
Effects of Roentgen Ray on Growth of Transplanted Tumors: I. K. Fukahori.—p. 13.

Epithelial Formations in Urinary Bladder.—It has been said by some that there is present in the mucous membrane of the urinary bladder a definite gland. Watanabe has examined seventeen bladders and denies the existence of such a gland. He asserts that what has been designated glands are merely epithelial invaginations of the mucous membrane.

South African Medical Record, Cape Town

24: 465-488 (Nov. 13) 1926

Surgery of Gallbladder. R. Daly.—p. 466.
Renal Calculus. E. B. Fuller.—p. 473.
Case of Jejunostomy for Intestinal Paresis. G. J. C. Smyth.—p. 476.

Bulletin de l'Académie de Médecine, Paris

96: 295-317 (Nov. 30) 1926

*Variability of Filtrable Tuberculous Virus. F. Arloing and A. Dufourt.—p. 301.
*Medical Secrecy. P. Gallois.—p. 306.
Frequency of Bronchitis from Spindle Shaped Spirochetes. P. Lafosse and J. Langle.—p. 310.
*The Phrenic Sign in Appendicitis. M. Iliescu.—p. 315.

Variability of Virulence and of Pathogenic Effects of Filtrable Tubercle Virus.—Arloing and Dufourt recall their previous researches showing that two forms of tuberculous infection could be induced by inoculation of guinea-pigs with filtrates of human tuberculous products. In one, the rarer form, cheesy tubercles formed. The other was characterized by infection of the lymphatic system and fatal cachexia. The reaction of the inoculated animals to ihtradermal injections of tuberculin was also studied. It now appears that inoculation with tuberculous filtrates may result in a third form of tuberculosis. This is an acute infection in which the filtrable virus is soon destroyed in the organism. The infection is revealed only by the tuberculin allergy. The frequency of this form is not yet exactly established. The variability of the virulence and of the pathogenic manifestations of the filtrable tuberculous virus corresponds to that of the acid-resisting tubercle bacillus.

Interpretation of Professional Confidence.—Gallois discusses the ethical and legislative sides of the question. He concludes that the hippocratic doctrine is still justified. Hippocrates asserted that the physician is not allowed to divulge the results of medical examination, if the patient objects. The physician should keep secret not only what the patient tells him, but also what he has found on examination, and what he has seen, heard or overheard. If divulgence of the secret becomes a necessity, the physician ought to write what he knows, in the form of a certificate, and give it to the patient. To the latter only belongs the privilege of delivering the certificate to those concerned. The physician who treated the patient cannot be called as an expert in the same case. The physician should avoid treating at the same time two persons whose interests are opposed. If medical information is needed for protection of the community, the state should ask the patient for a medical certificate. If it is not produced, official physicians may be asked to obtain the required information.

The Right Phrenic Sign in Appendicitis.—Iliescu states that in 105 cases of appendicitis, of which thirty-five were latent, he always found a very painful point on the right side of the neck, corresponding to the site of the phrenic nerve. The phrenic sign was absent in right salpingo-oophoritis and in pelviperitonitis, except in appendicular peritonitis. The sign disappears after an ice bag has been applied to the appendix. Recrudescence of the morbid focus and thus of the subhepatic lymphangitis is revealed by recrudescence of the phrenic sign. The latter may precede the fever. In two cases, diagnosed as volvulus and strangulated hernia, respectively, the presence of the phrenic sign helped to establish the diagnosis of appendicitis. The painful point is located in the middle of the triangle formed by the two heads of the sternomastoid muscle and the clavicle. It may also be detected by pressure on the left side of the neck; but it is considerably less pronounced here than on the right side.

Bulletins de la Société Médicale des Hôpitaux, Paris

50: 1623-1665 (Nov. 26) 1926. Partial Index

Hydatid Cyst with Hypertrophic Cirrhosis. E. May and A. Bocage.—p. 1623.
*Pernicious Anemia from Thorium. P. Emile-Weil.—p. 1627.
Cure of Abscess of the Brain Without Sequelae. Alajouanine and D. Petit-Dutaillis.—p. 1630.
Cure of Putrid Pleurisy in an Aged Man. M. Renaud and Peytavin.—p. 1635.
Exophthalmic Goiter Improved by Iodine. Landau.—p. 1637.
Spirochetes in Pulmonary Gangrene. F. Bezançon et al.—p. 1641.
Paresthetic Meralgia Following Vaccinal Herpes. Roch and J. Mozer.—p. 1651.
*Therapeutic Importance of Sodium Borate. M. Loeper et al.—p. 1656.

Pernicious Anemia Caused by Thorium.—In one of Emile-Weil's cases a myelogenic leukemia developed in pernicious anemia under the influence of prolonged treatment with thorium. In another case, a chronic lymphatic leukemia became acute after the fifth injection of thorium. In the patient with pernicious anemia blood transfusions were without effect. The lesions caused by thorium consisted of atrophy of the hematopoietic organs (spleen, bone marrow) and of the organs of reproduction (testicle or ovary). It was possible to induce pernicious anemia in animals by treating them with thorium.

Value of Sodium Borate in Therapeutics.—The action of sodium borate was studied by Loeper, Garcin and Tonnet in animals and in man. In man, from 2 to 3 Gm. were given by the mouth, and from 0.45 to 1.3 Gm. by the vein. Sodium borate does not change the p_H or the alkali reserve in the blood. The coagulation of blood is retarded by seven minutes and the bleeding time prolonged by four minutes an hour after the injection. Therefore, sodium borate would probably be of benefit where the viscosity and coagulability of the blood are increased. It might be detrimental in hemorrhagic diseases. Under the effect of sodium borate, the vascular tension falls by from 1 to 4 cm. of mercury. The pulse becomes slower; tachycardia improves. The sedative action on the nervous system was evident in tabes and esophageal spasms, among other conditions. Injections of sodium borate are followed by increased elimination of urine. With large doses, the azoturic coefficient is lowered. This fact, as well as the reduction of glycemia, reflects the action of sodium borate on renal function. A decrease of oxalic acid and of cholesterol is observed in the blood one hour after the injection. Daily injections resulted in a gain in weight ranging from 1 to 3 Kg. in three or four weeks. It appears that sodium borate may be successfully used in diabetes, gout, chronic rheumatism, exophthalmic goiter and emaciation, except in tuberculosis or cancer. Given by the mouth, it acts more rapidly; the action is more durable when it is given by the vein.

Comptes Rendus de la Société de Biologie, Paris

95: 1225-1304 (Nov. 26) 1926. Partial Index

Effect of Diathermy on Gastric and Intestinal Secretions. C. E. Stewart and W. N. Boldyreff.—p. 1226.
*Therapeutic Serum Used in the Form of Ointment. A. Besredka.—p. 1228.
*Action of Insulin on Gastric Function. J. H. Cascao de Anciaes.—p. 1258.
Sedimentation Speed of Erythrocytes in Leprosy. F. Landeiro.—p. 1261.
*Influence of Insulin on External Pancreatic Secretion. F. Fonseca and A. de Carvalho.—p. 1262.
*Action of Camphors on Helminths. S. F. Gomes da Costa.—p. 1273.
Effect of Sodium Salicylate on Helminths and the Isolated Heart. S. F. Gomes da Costa.—p. 1280.
*Action of Suprarenal Extracts on Exhausted Muscle. M. Ferreira de Mira.—p. 1284.
*Rôle of Blood and Nerve Cell in Antirabic Immunization. E. Pereira da Silva.—p. 1287.
*Rabicidal Substances in the Blood and Antirabic Immunization. E. Pereira da Silva.—p. 1289.
*Susceptibility and Resistance to Cancer Grafts. L. Simoes Raposo.—p. 1297.
Immunity Against Cancer from Cancer Grafts. L. Simoes Raposo.—p. 1299.

Use of Therapeutic Serums in the Form of Ointment Applied to the Skin.—Besredka made further experiments with diphtheria antiserum, incorporated in wool fat and petrolatum (40 cc. of antiserum, 20 Gm. of anhydrous wool fat, and 10 Gm. of petrolatum). The ointment was rubbed into the shaved skin of guinea-pigs, and a dressing was applied around the body. The next day a series of these animals was injected with a lethal dose of diphtheria toxin. By the third or fourth day, a black crust appeared on the site of the injection; it disappeared in from ten to fourteen days. The animals survived. The results were the same when the toxin was injected at or before the time that the antiserum was rubbed in.

Influence of Insulin on Gastric Function.—Cascao de Anciaes recalls his previous experiments demonstrating that insulin increases gastric acidity, especially in patients with gastric neurosis. He has learned further that the action of insulin is even more manifest in persons with hypochlorhydria of functional nature. In a case of functional achylia, hydrochloric acid appeared in the gastric juice after injection of

5 units of insulin. The secretion continued for 165 minutes. After a test meal, the gastric juice was still acid-free, and the gastric secretion ceased after seventy-five minutes. In a case of hypochlorhydria, the acidity increased to about three times the original after injection of 15 units of insulin. From 5 to 8 units of insulin accelerated the motility of the stomach; emptying occurring sometimes half an hour earlier than in the control test. Insulin also appeared to stimulate the secretion of lab ferment; this was independent of acid secretion. Insulin acts by way of the vegetative nervous system. The conclusion is that it can be used in the differentiation of functional and organic hypochlorhydria. Besides this, it may be beneficial in treatment of gastric neurosis with defective secretion.

Action of Insulin on External Secretion of the Pancreas.—The amount of amylase, protease and lipase did not change in the duodenal juice of ten persons examined after injection of 10 units of insulin. Neither were there changes in the amount of diastase in the blood serum or in the urine after injection of 20 units of insulin. Evidently insulin is without action on the external secretion of the pancreas.

Effect of Camphors on Helminths.—In Gomes da Costa's experiments on ascarides, the three kinds of camphor, the dextrorotatory, the levorotatory and the artificial, proved to possess an anthelmintic action. The dextrorotatory is the least rapid, the levorotatory the most rapid in action.

Action of Suprarenal Extracts on Exhausted Muscles.—Ferreira de Mira observed that extracts of the suprarenals of guinea-pigs or sheep induced recuperation of contractile power in an exhausted frog muscle. The effect was the same whether an extract of the medullary portion or of the cortical portion of the suprarenal was used. Analogous results were obtained with epinephrine. Not only the amplitude but also the duration of the contractions increased. He found that, contrary to Dessy and Grandis' statement, in case of reappearance of the muscular fatigue a second injection of epinephrine was as effectual as the first. Experiments are now being made to determine whether epinephrine acts only by increasing dilatation of the capillaries or whether it also exerts a direct action on muscular contractility.

Rôle of Blood and Nerve Cell in Immunization Against Rabies.—Pereira da Silva found that an emulsion of the brains of rabbits vaccinated against rabies did not neutralize an emulsion of the fixed virus in vitro, even when the serum of a normal rabbit was added. On the other hand, there was evidence that the blood serum of vaccinated rabbits neutralizes the fixed virus. Though the rôle of the nervous substance in immunization cannot yet be denied, the part played by the blood should also be considered.

Rabicidal Substances in the Blood and Antirabic Immunization.—Pereira da Silva reports two observations demonstrating the connection between the presence of rabicidal substances in the blood of persons treated against rabies and the immunization. In one case, blood was withdrawn from a patient who had received thirteen injections of fixed virus. The blood serum was mixed with an emulsion of fixed virus, and then injected beneath the dura mater of rabbits. All the animals died. The injections were continued and blood was withdrawn after thirty had been given. A series of rabbits was inoculated as before. Of these, one died from an intercurrent disease, another is still alive, the third died from rabies. Blood was withdrawn after forty injections and similar inoculations were made in three rabbits; these animals survived. The patient recovered. In another series of experiments, rabbits were inoculated with the blood of another patient, a child who had received forty injections. All these animals succumbed. The child died from rabies.

Susceptibility and Resistance to Cancer Grafts.—Fifty-five mice were inoculated subcutaneously with carcinoma. Four animals died. Of the surviving, thirty-seven developed tumor; in eleven the results were negative. In three, the tumor was resorbed from fourteen to twenty days after inoculation. The inoculation was repeated, whereupon 85.7 per cent of the animals refractory to the first inoculation developed tumor. It is evident, Simoes Raposo says, that investigators who draw conclusions from a single transplantation may be in error. In his opinion, susceptibility or resistance to cancer is not the only factor that is responsible for the fate of the cancer graft. The vitality of the transplant is also important for the development of the tumor.

Presse Médicale, Paris

34: 1537-1552 (Dec. 8) 1926. Partial Index

Bacteriotherapy of Infections.. A. Mauté.—p. 1541.
Physiopathology of Cerebrospinal Fluid. P. Pagniez.—p. 1543.

34: 1553-1568 (Dec. 11) 1926

Biography of Laënnec. A. Courcoux.—p. 1553.
Laënnec's Auscultation Method. P. Gallois.—p. 1557.
Laënnec as Practitioner. Bellencontre.—p. 1558.
Two Autographs of Laënnec. M. Letulle.—p. 1559.
Tuberculosis Sanatoriums. L. Baillet.—p. 1563.

34: 1601-1616 (Dec. 22) 1926

*Eosinophilia in Anaphylactic Conditions. Pasteur Vallery-Radot et al. —p. 1601.

Eosinophilia in Anaphylactic Conditions.—Estimation of the eosinophils was made by Pasteur Vallery-Radot, Blamoutier, Claude and Giroud in the blood of 253 adult patients presenting various manifestations of the anaphylactic type. They did not observe eosinophilia in crises of digestive anaphylaxis, such as urticaria, Quincke's edema or migraine. On the other hand, an increase in the number of eosinophils was found in the course of respiratory anaphylaxis. The phenomenon disappeared as soon as the crisis was over. Eosinophilia was noted in 76 per cent of patients with asthma, in 74 per cent of those with hay-fever, and in 54 per cent of those with spasmodic coryza. Evidently eosinophilia is not a sign of anaphylaxis or of colloidoclastic diathesis; neither is it a sign common to various anaphylactic conditions. The diagnostic value of eosinophilia is based on the fact that it is frequent in respiratory anaphylaxis.

34: 1617-1632 (Dec. 25) 1926

*Edema of the Lungs in the New-Born. R. Debré et al.—p. 1617.
Experimental and Clinical Facts Concerning the Follicular Hormone. L. Brouha and H. Simonnet.—p. 1619.
*Internal Factors of Growth. L. Binet.—p. 1621.

Infectious Edema of the Lungs in the New-Born.—Cases of subacute edema of the lungs were observed by Debré, Semelaigne and Cournand in infants born a few weeks before term. The infants were neither debilitated nor athreptic. They did not live in contact with tuberculous persons and did not present digestive disturbances, syphilis or infection of the umbilicus. Obstetric traumatism or excessive inhalation of liquids by the fetus during delivery had not occurred. Coughing was the first symptom. It started a few days or from three to five weeks after birth, and soon acquired a paroxysmal character. This was associated with dyspnea. Nevertheless, the general condition remained good. Auscultation revealed the pathognomonic signs of pulmonary edema. Roentgenograms pointed to congestion of the lungs. The children were treated symptomatically and recovered after two or three months. One baby died from an intercurrent disease of the digestive tract, another from a complicating empyema. The authors emphasize the point that the pneumococcus was isolated from the bronchial mucus and pus in one instance and from the pleural pus in another.

The Internal Factors of Growth.—Binet summarizes the researches of others and his own work on the internal factors of growth. The action of the nervous system is admitted by certain investigators, for instance, Locatelli; it is denied by others, including Wintrebert. A further theory is that embryonal and young tissues contain substances (Carrel and Ebeling's trephones) that stimulate growth. The influence of the thyroid on development of the skeleton is generally acknowledged. The physiology of the thymus is connected with phenomena of growth. Experimentation and anatomic and clinical studies testify to the action of the pituitary, especially its anterior lobe, on growth. The pancreas and the suprarenals are without apparent influence in this respect. In splenectomized animals, growth is usually retarded. Removal of the testes in rats did not induce changes in growth, while removal of the ovaries in young animals caused gain in weight followed by retardation in growth. Muscular exercise does not accelerate growth.

Schweizerische medizinische Wochenschrift, Basel

56: 1089-1112 (Nov. 13) 1926

*Osteomyelitis of the Neck of the Femur. Monnier.—p. 1089.
Fattening with Insulin in Asthenia. A. Haemmerli.—p. 1095.
Determination of Basal Metabolism. C. Meili.—p. 1100.
*Fatal "Traumatic Exophthalmic Goiter." M. Vischer.—p. 1102.
*Speech and Pulmonary Tuberculosis. P. Lohfeldt.—p. 1103.
*Pneumatic Syringe. N. Betchov.—p. 1104.

Osteomyelitis of the Neck of the Femur.—Monnier discusses his four cases of osteomyelitis of the neck of the femur in children. Resection of the diseased bone is theoretically the safest method of treatment, but the functional results are bad. It is indicated only in the most dangerous situations. He prefers an anterior arthrotomy. Puncture or trephining of the bone is advisable, especially with a roentgenologically visible focus.

Fatal "Traumatic Exophthalmic Goiter."—Vischer's patient, a virgin, aged 43, with some neurotic heredity, was accidentally hit on the head by a brick. She came home so excited that she had to be kept in bed. A few days later all the symptoms of exophthalmic goiter developed. The patient died one month after the accident.

Speech and Pulmonary Tuberculosis.—Lohfeldt's father asserted that a singer who has a strong voice will not develop tuberculosis. The author uses vocal training in treatment of pulmonary tuberculosis and affirms that, at least, it controls coughing.

Pneumatic Syringe.—Betchov's syringe contains a canal in the piston, which is occluded by a finger when making an injection. If more than the contents of the syringe are to be injected, the piston is withdrawn and the fluid poured into the syringe through a deep notch at its end.

Policlinico, Rome

33: 1591-1625 (Nov. 15) 1926

This issue contains the first part of the proceedings of the Thirty-Second Italian Congress of Internal Medicine.

33: 545-596 (Nov. 15) 1926. Surgical Section

Pathology of Peptic Ulcers. A. Ciminata.—p. 545.
Traumatic Ossification of the Elbow. P. Costantini.—p. 551.
Primary Tuberculosis of the Parotid. L. Lazzarini.—p. 565.
*Autohemotherapy in Surgery. K. Mouhtar and S. Scandurra.—p. 577.
Anterior Encysted Peritonitis. A. Pennisi.—p. 590.

Autohemotherapy in Surgery.—Mouhtar and Scandurra report good experimental and clinical results from autohemotherapy. In some of their cases they used it in Laewen's form of infiltration of the tissue around infectious foci.

Riforma Medica, Naples

42: 1081-1104 (Nov. 15) 1926

*Filtrable and Ultrafiltrable Viruses. O. Casagrandi.—p. 1081.
Cytolysins in the Serum in Cancer. F. Flarer.—p. 1083.
*Urticaria from Cold. G. B. Podestà.—p. 1086.
Local Immunization. A. Oro.—p. 1089.
Gas Embolism from Pneumothorax. Bondolfi.—p. 1097.

Filtrable and Ultrafiltrable Viruses.—Casagrandi states that he obtained not only filtrable viruses in the majority of infectious diseases, but also some ultrafiltrable agents—for instance, in smallpox.

Urticaria from the Cold.—Podestà reports two cases of urticaria provoked by exposure to cold. Signs of syphilis were not present.

Revista de Cirugía, Buenos Aires

5: 433-480 (Oct.) 1926

*Surgical Treatment of Chronic Intestinal Stasis. A. Zeno.—p. 433.
Preoperative and Postoperative Management. D. S. Cúneo.—p. 450.
*Section of the Maxillary Nerves. Alvelino Gutiérrez and Alberto Gutiérrez.—p. 456.
Partial Nephrectomy for Echinococcus Cyst. A. Bengolea.—p. 466.
Painless Calcaneal Spurs. C. I. Allende.—p. 470.
Wischnewsky's Drainage of the Bile Ducts. A. Gutiérrez.—p. 476.
Abnormalities of the Subclavian Artery. R. Belleville and G. I. Belleville.—p. 478.

Colectomy in Chronic Intestinal Stasis.—At the recent Argentine Medical Congress, Zeno was asked to review the surgical treatment of chronic constipation. Colectomy should be reserved for cases in which medical treatment and conservative surgical methods fail. Of thirty patients on whom Lane's operation was performed between January, 1918, and August, 1920, only fourteen survived. The immediate death rate reached 20 per cent, the most frequent causes being peritonitis, volvulus and shock. Immediate deaths did not occur among the five women. The age and general condition have also a great deal to do with the results. Above 40 years, colectomy is almost contraindicated. The early sensation of well being is often misleading. Postoperative hemorrhages developed in only one patient; after a number of recurrences they ceased spontaneously. In five cases complicated with tuberculosis of the bones and joints, the final result was invariably disastrous, despite Lane's assertions. The outcome was poor in five cases associated with nervous lesions elsewhere in the body. Of the fourteen surviving patients, in only nine can the operation be called a success. Total colectomy is a serious operation, limited to very special cases. Zeno's recent modification seems to lessen the risks. Section of the right colon is far less dangerous than the complete operation. Left colectomy is more prone to be followed by peritonitis.

Best Approach to the Maxillary Nerves.—The two Gutiérrez describe, with illustrations, the technic used for sectioning the maxillary nerves in three cases of trifacial neuralgia. They prefer to divide the nerves where they emerge from the skull, before they begin to branch. The secret of success lies in taking each step in the shelter of a bone: temporal, sphenotemporal ridge, lower sphenoid surface, or external surface of the pterygoid process.

Revista de Medicina y Cirugía, Caracas

9: 117-134 (July) 1926

*Diagnosis of Tuberculous Meningitis. F. de P. Rivas Maza.—p. 117.
Medical Treatment of Gastric Ulcer. F. de P. Rivas Maza.—p. 123.
Indications for Ultra-Violet Ray Therapy. V. Peña.—p. 130.

The Spinal Fluid in the Diagnosis of Tuberculous Meningitis.—Unless tubercle bacilli are found in the spinal fluid, explains Rivas, the other signs, such as increased albumin and lymphocytes, have only presumptive value. Two cases exhibiting those signs were labeled tuberculosis. In one the meningitis yielded to treatment for typhoid; in the other, to mercurial inunctions. However, a tuberculous origin must be suspected when the clinical signs point in that direction, if the parents are tuberculous and the environment is insanitary.

Revista de Medicina y Cirugía de la Habana, Havana

31: 589-618 (Nov. 10) 1926

*Polypi in the Verumontanum. F. B. Ruiz.—p. 589.
The Havana Maternity and Foundling Home. R. M. Alfonso.—p. 594.

Polypi in the Verumontanum.—Recent technical improvements and posterior urethroscopy have shown that polypi are not so uncommon in the verumontanum as was previously believed. They must not be confused with mere shreds of mucous membrane or adhesive blood clots. The bell-clapper aspect of real polypi is unmistakable. Their alleged prevalence in cases of gonorrhea seems to be due to the fact that these patients are more often examined with the urethroscope. Polypi in the verumontanum may prove to be the only cause of certain vague urinary and sexual disturbances.

Semana Médica, Buenos Aires

33: 1385-1452 (Nov. 25) 1926

*Early Surgical Treatment of Eclampsia. J. C. Llames Massini.—p. 1385.
Position of Patient in Difficult Rectosigmoidoscopic Maneuvers. R. Finochietto.—p. 1404.
Phrenicoparietal Syndrome. P. Cossio.—p. 1408.
Osteoma of the External Wall of the Orbit. P. Satanowsky.—p. 1418.
Treatment of Diabetic Polyneuritis. R. A. Nölting et al.—p. 1426.
Classic Cesarean Section in Placenta Praevia. T. A. Chamorro and R. Renauld.—p. 1431.
Recurrent Intestinal Obstruction from Appendicular Peritonitis. R. Solé.—p. 1432.
Sex Education: Comments. L. Bard.—p. 1436.
*Neutralization of Potassium Cyanide by Sucrose? R. Girla Corbella.—p. 1437.
The Rays Used in Deep Roentgenotherapy. J. A. Saralegui and F. Vierheller.—p. 1437.
Reflex Pains in the Ear. L. Sánchez Moreno.—p. 1444.
*Autohemotherapy and Dermatology. M. Arana.—p. 1449.

Treatment of Eclampsia.—The routine treatment for eclampsia at the Fernández Hospital includes immediate emptying of the uterus, withdrawal of from 500 to 750 cc. of blood, and Stroganoff's method. If the fetus is dead, the uterus need not be evacuated, as improvement usually begins at once. There are two signs which, appearing together, are ominous: a temperature above 39.5 C. (103 F.) and suppresion of urine. Hemoglobinuria is the only sign which, taken by itself, has much prognostic value. The majority of patients with hemoglobinuria die. Even hypertension may be absent. Eclampsia is the disease of hypotheses, said Paul Bar, and, one may add, of surprises. As the chief factor resides in the placenta, this must be removed, but quickly and without inducing uterine contractions. A patient improved after being delivered of a live fetus, but a cesarean section had to be performed nine days afterward, as the symptoms recurred. In another case, the convulsions ceased when the fetus died, but started anew when the pains recommenced. Out of ninety-two women, twenty-three died. There was not one maternal or fetal death among fourteen early cesarean sections.

Neutralization of Potassium Cyanide by Sucrose.—After swallowing accidentally about 0.42 Gm. of potassium cyanide, a woman suffered only slight discomfort. The cyanide had been placed in a sweetened beverage. Girla wonders whether sucrose could be used as a preventive in cyanide factories, in case its neutralizing value is established.

Injections of the Patient's Own Blood in Skin Diseases.—Because of the simplicity and safety of the method, Arana tried autohemotherapy in a number of skin diseases. In pruritus, prurigo and urticaria it was used alone, and all the patients were either cured or improved. In eczema, local treatment was also used, but the healing seemed to be hastened by the autohemotherapy. Four or five injections of from 10 to 15 cc. each are often enough, but sometimes eight or ten injections of 20 cc. each are necessary. In adults the first dose is 5 cc.; in children, 2 cc. The blood is taken from the bend of the elbow and injected in the buttocks.

Archiv für path. Anatomie and Physiologie, Berlin

262: 1-304 (Oct. 28) 1926

"Secondary Myelosis" in Tuberculosis. B. Swirtschewskaja.—p. 1.
*Nature of Spindle Cells. L. Gordon.—p. 19.
*Oxidation Ferments in the Cell. W. Loele.—p. 39.
"Specificity" of the Cell Reaction in Abdominal Cavity and Spleen. G. Wallbach.—p. 61.
Fatty Liver in Tuberculosis. K. W. Clauberg.—p. 74.
*Accumulation of Lipoids in Large Mitral Valve. A. M. Troitzkaja-Andreewa.—p. 81.
*Suprarenals in Beriberi of Pigeons. J. M. Lasowsky and W. S. Simnitzky.—p. 101.
Problems of Midbrain-Pituitary System. T. Takao.—p. 124.
Traumatic Porencephalia. Schröer.—p. 144.
Histopathology of Pituitary Gland. H. Kiyono.—p. 149.
Morphology of Rabies Virus. F. Paul and F. Schweinburg.—p. 164.
Regenerative Processes in the Lung in Primary Pulmonary Cancer. M. Brandt.—p. 211.
Nature of Predisposition to Cancer. J. von Borza and B. Melly.—p. 275.
Degeneration of Suprarenals in Addison's Disease. W. Steinbiss.—p. 286.
"Histology of Mammary Gland During Menstruation." A. Rosenburg.—p. 298.
Comment on Above Reply. A. Dietrich and H. Dieckmann.—p. 304.

Spindle Cells in the Blood of Animals with Nucleated Erythrocytes.—Gordon studied the blood of the hen, turkey, pigeon and frog. He asserts that spindle cells are derived from erythrocytes. These cells have common nuclear structure, oval-disk shape, typical edges and polar bodies. In hemorrhage increase of spindle cells was followed by decrease of erythrocytes. The spindle cells seemed to represent dehemoglobinized, overripe or old erythrocytes, containing nuclei.

Oxidation Ferments in the Cell.—Loele studied the benzidine and indophenol blue reactions in blood cells and animal and plant tissue cells. Filtration experiments on pumpkin seeds showed that peroxydase has about the same molecular magnitude as phenol. At least four different groups of naphthol-oxydases were present in the cells: one which forms peroxide, one oxydasing group (peroxidase), one which has the property of binding dyes and, finally, nitrogen groups, which do not belong directly to oxydase, but which can be replaced by nitrogen groups in the reagent, and which represent partial oxydase.

Accumulation of Lipoids in the Large Mitral Valve.—In histologic examinations of 120 cases, Troitzkaja-Andreewa found lipoid deposits in all except eight. The process corresponds to the formation of lipoid spots in the aortic wall. The accumulation of lipoids in the mitral valve begins at birth and continues until the tenth year. There is a pause between the tenth and thirtieth years, when retrogression often occurs. Simultaneous hyperplastic tissue changes were not observed, although such changes occur in connection with deposits in the walls of the larger arteries. The process must be considered not as arteriosclerosis but as lipoidosis of the mitral valve.

Changes in the Suprarenals in Beriberi in Pigeons.—Lasowsky and Simnitzky developed B avitaminosis in pigeons by feeding them polished rice. Histologic examinations of the suprarenals showed a marked hypertrophy both of the cortex and of the marrow, characterized by increase in the fat content (a mixture of cholesterol esters with neutral fats). The increased infiltration of fat was due to hyperlipemia of the blood caused by B avitaminosis. The hypertrophy of the marrow was accompanied by enlargement of the cells.

Deutsche medizinische Wochenschrift, Berlin

52: 1929-1974 (Nov. 12) 1926

Psychopathology of Criminals. Raecke.—p. 1929.
*Grave Colitis. H. Strauss.—p. 1931.
*Blunders in Diagnosis of Syphilis. H. Hecht.—p. 1933.
*Diphtheria of the Larynx. W. Blacher.—p. 1935.
*Serodiagnosis of Tuberculosis. W. Liese and F. Weigmann.—p. 1938.
*Treatment of Ureteral Calculi. A. Rothschild.—p. 1939.
Problems of Circulation. J. Plesch.—p. 1941.
Scoliosis and Gymnastics. C. Deutschländer.—p. 1943. C'cn.
*Man and Ape. P. Uhlenhuth.—p. 1945.
*Fibrillation of Auricles or Ventricles and Block. S. de Boer.—p. 1945.
Insulin by Mouth. W. Fornet.—p. 1946.
Tutocaine. H. Steichele.—p. 1948.
Facial Paralysis in Acute Arthritis. G. Reinhold.—p. 1949.
Visualization of Gallbladder. A. Roseno.—p. 1949.
Pharmacotherapy in Gynecology. E. Pribram.—p. 1950.

Grave Colitis.—After describing the symptoms, Strauss discusses treatment. He is using the endoscopic method (insufflation by means of a sigmoidoscope) less and less—only if the disease is limited to the rectum. Therapeutic enemas are important, but even here he is getting more conservative in the selection of the drugs to be used. Lime water diluted ten times is probably the best of them. If internal treatment applied for several months fails, he considers surgical intervention. Five out of his ten patients in whom an artificial anus was made died within a few days, although only one of them developed peritonitis. Since that time, he has advised a preliminary appendicostomy or cecostomy for cautious irrigation of the bowel. The small fistula relieves the gas pains immediately. The internal treatment is continued for several months more. If it fails again, an anus preternaturalis must be instituted. It gives good results in about half of the patients.

Blunders in Diagnosis of Syphilis.—Hecht reports a series of cases in which the possibility of syphilis had been overlooked. Enlarged retromandibular lymph nodes were regarded as tuberculous and were treated by a specialist in spite of the primary sclerosis of the lower lip. Roentgen rays were used in treatment of a gumma of the nose diagnosed as lupus. Several patients had been treated locally over a period for alleged aphthae. In one of them the syphilitic nature of the disease was discovered just before his intended marriage. Typhoid was probably suspected in a young man with fever, headaches and rash—in spite of the generalized lymphadenitis. An old woman with a negative Wassermann reaction developed a painful, growing tumor on the foot. Some time after amputation of the foot a similar tumor developed in the inguinal region. The surgeon again intended to remove it, but the woman recovered after tentative treatment with potassium iodide. Hecht points out that serodiagnosis should be part of the routine examination. He also wants it supplemented by his active method, which is superior to the original Wassermann test in latent syphilis. With careful

technic and disregard of incomplete inhibitions, the percentage of false positive results is low.

Diphtheria of the Larynx.—Blacher discusses critically the treatment of laryngeal diphtheria according to different authors. He tries to avoid surgical intervention in children below the age of 2, but, if either is necessary, he prefers tracheotomy to intubation. The disappearance of the pulse during inspiration is a good test for stenosis. The latter can be prevented by early diagnosis followed by large and repeated doses of antitoxin.

Serodiagnosis of Tuberculosis.—Liese and Weigmann describe the preparation of new extracts from tubercle bacilli. The intention is to obtain the lipoproteins. According to Schumacher, such compounds are responsible for the acid-fastness and gram-positive reaction of the tubercle bacilli. The preliminary results were good.

Treatment of Ureteral Calculi.—Rothschild succeeded in removing several ureteral calculi by means of cystoscopy and the introduction of ureteral catheters.

Man and Ape.—Uhlenhuth points out that a report for forensic purposes on precipitin tests for the human origin of blood spots should never be returned as positive without the warning that the legal evidence must exclude the possibility of the presence of blood from apes or certain monkeys. The differences are not sufficiently great to allow medicolegal decisions. Absence of a formation of precipitins to a foreign blood is a finer indicator of biologic kinship. It is impossible to induce in horses formation of precipitins to ass' blood and vice versa. Rabbits may produce precipitins to hare's blood. Therefore, he believes that hybridization of hares with rabbits is impossible. Some lower species of monkeys produce precipitins to human blood. Similar experiments with the apes are highly desirable.

Fibrillation of Auricles or Ventricles and Heart Block.—De Boer shows that the ventricles are more liable to begin fibrillating in heart block than with normal rhythm. If auricular fibrillation is associated with complete heart block—the heart beat is regular then (about 30 a minute)—quinidin is strictly contraindicated.

Klinische Wochenschrift, Berlin

5: 2145-2192 (Nov. 12) 1926

Weakening of Vital Instincts. L. R. Müller.—p. 2145.
*Blood Circulation in Coma. K. von Neergaard.—p. 2148.
Pulsus Alternans. H. Regelsberger.—p. 2149.
Ovarian Hormone. M. Hartmann.—p. 2152.
*Modifications of Abderhalden Test. P. Schugt and R. Brühl.—p. 2154.
*Action of Insulin. K. Holm.—p. 2157.
*Acidity and Growth of Tadpoles. K. Scheer.—p. 2161.
*Digestion of Connective Tissue. F. W. Schembra.—p. 2162.
Estimation of Blood Sugar. J. T. Peters.—p. 2163.
Treatment of Staphylococcus Infections. Läwen.—p. 2164.
"Individual Behavior of the Cell." H. Handovsky.—p. 2165.
*Blood Groups in Criminals. M. Gundel.—p. 2165.
*Hypoglycemic Action of Sulphur. D. Campanacci and R. Balducci.—p. 2166.
Hemophilia. E. Wittkower.—p. 2167.
Nontropical Sprue. T. E. H. Thaysen.—p. 2168.
Blood Sugar and Poisons. F. Bertram.—p. 2172.

Mechanism of Circulatory Disturbance in Diabetic Coma.—In spite of insulin, death occurs in a large percentage of cases of diabetic coma. This is due, according to Neergaard, to a failure of the peripheral circulation, while the heart may be normal. Cyanosis is not present. The peculiar pink complexion is due to a dilatation of the capillaries at the point where the arterial portion turns into the venous. He reports the history of a woman who regained consciousness after insulin but who was still in a dangerous condition. The pulse was small and very frequent; the eyeballs were hypotonic. Intravenous injections of Ringer's solution and cardiac medication improved the patient's condition temporarily. Intravenous injection of epinephrine seemed to have an excellent effect and the patient recovered.

Modifications of Abderhalden Test.—Schugt and Brühl report their failures especially with the Lüttge-von Mertz alcohol extract reaction.

Action of Insulin.—Holm injected a dose of insulin fractionally into the vein or used it in a protracted intravenous injection (for instance, 33 units in 600 cc. of salt solution administered slowly within six hours). He found that, introduced in this manner, its action was much stronger than when given intravenously in one dose. The hypoglycemia developed just as rapidly as in the latter case. When injecting insulin intracutaneously, or subcutaneously with an addition of proteins, the action was just as marked as with fractioned administration. Slow absorption is the feature common to all these measures. He suggests that insulin should be standardized by intravenous injections only.

Acidity and Growth of Tadpoles.—Scheer kept tadpoles in solutions of different reactions (p_H from 5.5 to 8.2). The more alkaline the reaction, the faster was the growth. It paralleled the influence of the hydrogen ion concentration on swelling of colloids.

Digestion of Connective Tissue.—Schembra confirms the fact that raw connective tissue can be digested only by hydrochloric acid and pepsin, not by trypsin or intestinal secretions. Buckstein's diverging results were apparently due to a simple swelling of the catgut he used to occlude the sacs in Sahli's desmoid test. Whenever the catgut was cut near the knot, it became loose, but it was not digested in absence of gastric secretion.

Blood Groups in Criminals.—Gundel had found that blood group III occurred much more frequently among the 402 patients of the neurologic clinic in Kiel than among the general population (25.1 per cent as against 13.4 per cent). He now reports the results which he obtained in examining 884 inmates of penal institutions. Blood group III occurred in 19.1 per cent, while blood group IV (AB) was rare (2.0 per cent as against 5.7 per cent among the general population). Crimes of violence had been committed by 110 inmates. Group IV was not represented among them, while group III comprised 30 per cent of them. The same group was prevalent among habitual criminals.

Hypoglycemic Action of Sulphur.—Campanacci and Balducci observed a slight lowering of the blood sugar after injections of colloidal sulphur. They point to the observations of other authors on the increased sulphur content of blood after extirpation of suprarenals and to the insulin hypersensitiveness in Addison's disease; they also discuss the significance of the sulphur content of insulin.

Medizinische Klinik, Berlin

22: 1707-1746 (Nov. 5) 1926

Percussion and Auscultation of the Lungs. W. Olshausen.—p. 1707.
Subfebrile Conditions. E. Mester.—p. 1708. C'cn.
*Function Tests with Dyes. Schellong.—p. 1711.
Incarcerated Hydrocele of Spermatic Duct. Kleinschmidt.—p. 1713.
*Reducing Without Dieting. R. Hirsch.—p. 1714.
Fracture of Tip of Olecranon. M. Wülfing.—p. 1717.
Meckel's Diverticulum. E. Marcuse.—p. 1719.
*Treatment of Peptic Ulcers. T. Bársony and G. Szemző.—p. 1721.
*Lack of Appetite in Children. H. Kopf.—p. 1722.
Still's Disease. R. Schmidt.—p. 1724.
Bicolor Shellac Test. E. von Thurzó and A. Marchionini.—p. 1724.
Indications in Leukorrhea. Benthin.—p. 1725.
Phosphates and Vegetative System. W. Cimbal.—p. 1727.
Dilatation of the Lungs and Occupation. Von Schnizer.—p. 1730.
Survey of Psychanalysis. K. Fahrenkamp.—p. 1731.
Physical Development of Students. Kuhn et al.—p. 1742.

Function Tests with Dyes.—Schellong, with Athanassiu and Eisler, investigated the use of various dyes for testing the function of the liver and reticulo-endothelial apparatus. Neither phenoltetrachlorphthalein nor azorubin S is by any means a specific test of hepatic function: the condition of the the reticulo-endothelial apparatus is an equally important determining factor of the duration of the circulation of these dyes in the blood stream. On the other hand, the behavior of congo red, which has been suggested for similar tests of the reticulo-endothelial system, is not specific, but depends also on the function of the liver.

Reducing Without Dieting.—Hirsch recalls her book on "Physical Culture for Women," published in 1913 and now practically out of date. Fashion has since discarded the corset and in other ways improved the physique of women. The short skirt taught the importance of well formed legs. The one disadvantage of the present fashion is its preference

for slender lines. Women will not believe that chronic fasting is a slow method of suicide. The abdominal organs lose their fixation because of the loss of fat; the resistance against diseases is diminished and gastric disturbances occur if, after some time, the starving subject attempts to return to normal conditions. Thyroid preparations act promptly if the obesity is due to hypothyroidism. They do not reduce weight without restriction of food if the obesity is due to overeating. She had some good results in such cases, when adding bromides and pituitary extract to the thyroid preparation.

Treatment of Peptic Ulcers.—Every second or third day Bársony and Szemző injected intravenously 10 cc. of a 10 per cent solution of sodium chloride in the treatment of twenty-five patients with ulcer of the stomach or duodenum. The number of injections given was from ten to fifteen. The majority of the patients were soon considerably improved, but the disturbances reappeared after some time.

Lack of Appetite in Children.—Kopf recommends small doses of thyroid (0.02 to 0.06 Gm. of extract) for children who will not eat. With this treatment he sometimes gives the anterior lobe of the pituitary and 50 to 150 Gm. of a mineral water containing sodium sulphate.

Münchener medizinische Wochenschrift, Munich

73: 1867-1912 (Nov. 5) 1926

*Simplification of Serodiagnosis. H. Sellheim.—p. 1867.
Circulation and Respiratory Metabolism During Exertion. J. Kaup and A. Grosse.—p. 1873. C'td.
Syphilis Immunity in General Paralysis. F. Jahnel and J. Lange. —p. 1875.
*Shock Treatment in Diabetes. G. Singer.—p. 1877.
*Lactic Acid in Exudates. R. Scheller.—p. 1879.
Infantilism. J. S. Galant.—p. 1881.
Test of Motility of Colon. F. Niklas.—p. 1882.
*Calcium Treatment of Adnexitis. J. Vonkennel.—p. 1884.
Tutocaine. G. Düttmann.—p. 1885.
Reposition of Paraphimosis. W. Steimann.—p. 1886.
Physical Treatment of Tonsillitis. H. Malten.—p. 1887.
Anthrax. P. Graf.—p. 1888.
Two Years of Iodized Salt. H. Sepp.—p. 1889.
A New Hematokrit. C. M. van Allen.—p. 1890.
*Surgery in Jaundice from Gallstones. V. Schmieden and W. Sebening. —p. 1891.

Simplification of Serodiagnosis.—Sellheim describes the various modifications of the Abderhalden reaction elaborated at his clinic by Lüttge, von Mertz and others. The latest development is the synthetic preparation of extracts. It seems that the capacity of the serum to bind acid and protein-cleavage products of low molecular weight, together with the salt content, determines the result. The reaction is practically instantaneous. This speaks against the hypothesis of enzymic action.

Shock Treatment in Diabetes.—Singer reviews the results of his treatment of diabetes with injections of milk preparations. Youthful diabetic patients were not permanently benefited. He had, however, good results in other patients, especially with surgical complications.

Lactic Acid in Exudates.—Scheller found the same concentration of lactic acid in the blood and in pleural transudates. Dextrose is absent in the exudate of tumor, tuberculosis or purulent infections of the pleura. The lactic acid content is high. He found large amounts of lactic acid in the ascitic fluid in patients with malignant tumors, although the sugar content was almost normal.

Calcium Treatment of Adnexitis.—Vonkennel found that an acute gonorrheal inflammation of the adnexa may be cured in two or three days, if each day two injections of 10 cc. each of afenil (calcium chloride and urea) are given intravenously from the onset. Otherwise he uses one injection daily and combines it with the usual local treatment by cold or heat.

Surgery in Jaundice from Gallstones.—Schmieden and Sebening advise surgical intervention, if the complete retention of bile lasts for fourteen days. If it persists longer, there is great danger of cholemic hemorrhage. Immediate intervention is necessary, if the jaundice is associated for two to three days with fever and chills, which indicate a cholangeitis. The surgeon may wait three or four weeks, in cases of intermittent occlusion of the bile duct, provided the patient's general condition is good.

73: 1913-1960 (Nov. 12) 1926

Roentgen-Ray Dosage. G. Holzknecht.—p. 1913.
*Roentgen-Ray Treatment of Neuralgia. A. Müller.—p. 1915.
Economics of Roentgen-Ray Work. B. Niekau.—p. 1916.
*Adaptation in Skiascopy. G. Ganter.—p. 1917.
Injuries in Athletics. O. Schmith.—p. 1918.
Fattening with Insulin. T. Böckheler.—p. 1921.
Serotherapy of Dysentery. H. Knauer.—p. 1924.
Dysentery Bacilli in the Blood. H. Sprangler.—p. 1926.
*Chronic Tonsillitis and Nephritis. Wichert.—p. 1926.
*Diseases of the Suprarenals. A. Bittorf.—p. 1928.
Tuberculids Developing After "Sanocrysin" Treatment. O. Naegeli. —p. 1929.
Tutocain. C. Flechtenmacher.—p. 1934.
Treatment of Acute Furuncle. H. Heinemann.—p. 1936.
Conjugal Syphilis Resistant to Arsphenamine. F. W. Kloeppel.—p. 1936.
"Recovery from Tuberculous Meningitis." O. Wiese.—p. 1937.
*Testing a Magnetopath. R. Rinkel.—p. 1937.
Circulation, Oxygen Utilization and Recuperation on Exertion. J. Kaup and A. Grosse.—p. 1938.
Prevention of Pain on Changing Dressings. A. Krecke.—p. 1941.

Roentgen-Ray Treatment of Neuralgia.—Müller finds that neuralgia of the trifacial nerve responds to roentgen irradiation better than any other neuralgia. Among his twenty-three patients treated during the last three years, the method failed in five, probably because of previous injection of alcohol into the nerve. Four patients improved, but could not be located later. In five patients the neuralgia was recent. All of these recovered immediately. Among seven patients with neuralgia of longer standing, five were cured by two or three irradiations, while two had a relapse after three and four months, respectively. Good technic is the most important factor. The results obtained in sciatica were not so satisfactory.

Adaptation in Skiascopy.—Ganter covers one of his eyes, while using the other for daylight. The covered eye becomes adapted to darkness, and the roentgenologist is able to begin a skiascopic examination immediately after entering the darkened room.

Chronic Tonsillitis and Nephritis.—Wichert advises removing the tonsils as a routine measure in every case of chronic nephritis, unless there are special contraindications.

Diseases of the Suprarenals.—Bittorf describes a clinical picture which, he declares, is typical for ascending thrombosis of the inferior vena cava. After thrombosis of both femoral veins and further ascension (gradual development of edema of the abdominal wall), the amount of urine decreases suddenly, because of occlusion of the renal veins. A few days later, when the thrombosis reaches the suprarenal veins, the pulse becomes small and soft; later it is hardly palpable. Anemic and cyanotic spots resembling livor appear on the skin. Respiration becomes slow and deep; general adynamia and subnormal temperature complete the syndrome, which ends in a few days with death. He also describes a case of Addison's disease—perhaps a sequel of typhoid—with spontaneous recovery beginning about a month after the onset. Even the abnormal pigmentation of the skin gradually disappeared.

Testing a Magnetopath.—A man who was successful in the business of magnetopathy asked Rinkel, who is professor of physics, to examine him for magnetic and luminous radiations. His patients claimed that they could see light emanating from his fingers as well as an aureola around his head. Rinkel used his most sensitive galvanometer, but did not find any evidence of a magnetic field near the fingers. The aureola was absent in a perfectly dark room. It appeared only when the room was partially darkened. Then the white hair of the magnetopath and rapid movements of his fingers produced an illusion of luminosity, which persisted unless the myopic observer used his eyeglasses.

Wiener klinische Wochenschrift, Vienna

39: 1325-1352 (Nov. 11) 1926

*Treatment of Syphilis. G. Scherber.—p. 1325.
Metastases of Bronchogenic Phthisis. F. Fleischner.—p. 1330.
Dermatochalasis. H. Fuhs.—p. 1331.
Roentgen-Ray Injuries of the Skin. S. Simon.—p. 1332.
Diseases of Mouth and Jaws. B. Mayrhofer.—p. 1335.
Surgery of the Ureter. F. Orthner.—p. 1338.
Resuscitation from Electric Shock. S. Jellinek.—p. 1338.

Treatment of Gout. E. Freund.—p. 1340.
Management of Therapeutic Fistulas. W. Denk.—p. 1341.
Radium and Roentgen-Ray Therapy in Gynecology. J. Amreich. Supplement.—pp. 1-16.

Treatment of Syphilis.—Scherber recommends two energetic courses of combined arsphenamine-bismuth treatment before inoculating malaria. Two or three such courses should follow the malaria. The patient's heart should be prepared for the fever with digitalis. After the malaria he observed in one of his patients a syphilitic periostitis which continued to recur in spite of antisyphilitic treatment.

Zeitschrift f. d. ges. experimentelle Medizin, Berlin

52: 559-793 (Oct. 22) 1926

Pilocarpine and Formation of Immune Bodies. A. Belák et al.—p. 559.
Injection of Sodium Chloride and Formation of Agglutinin. A. Belák and L. Cseresznyés.—p. 567.
Stimulus Theory of Formation of Immune Bodies. A. Belák and L. Cseresznyés.—p. 572.
Tetany Problem. T. Brehme and G. Popoviciu.—p. 579.
Effect of Potassium and Calcium on Urinary Acidity. S. Hetényi and J. Holló.—p. 595.
Sliding Resistant Apparatus. M. Kochmann and H. Heinroth.—p. 603.
*Glycolysis in the Blood of Birds. A. Bornstein and O. Ascher.—p. 607.
*Glycolysis in the Blood of Birds After Roentgen Irradiation. A. Bornstein and O. Ascher.—p. 615.
Origination of Pain Sensations in the Kidneys. M. M. Gubergritz and I. N. Istschenko.—p. 619.
Epinephrine Sensitiveness. P. Mahler.—p. 634.
Sedimentation Speed and Color Index of Erythrocytes. M. Ohno.—p. 643.
Retrogression of Intravital Carmin Depositions in Rabbits. J. Teploff.—p. 653.
*Formaldehyde Pigment. P. Schwartz and R. Bieling.—p. 678.
Effect of Rye and Wheat Bread on Gastric Secretion. W. H. Gantt.—p. 688.
Pepsin and Antipepsin. A. Gruca and W. Jankowska.—p. 692.
Amino-Acids in Decomposition and Formation of Acetone Bodies. S. Weiss.—p. 707.
Vital Staining and Electropism. L. Németh.—p. 715.
Rhythmic Contractions of Smooth Musculature. W. Weitz and W. Vollers.—p. 723.
Motility of Small Intestine. W. Weitz and W. Vollers.—p. 747.
*Effect of Atropine on Secretory and Motor Function of Healthy Stomach. T. Rall.—p. 752.
Effect of Cold Baths on Blood and Urine Reactions. C. Kroetz.—p. 760.
*Metabolism in Deprivation of Sleep. C. Kroetz.—p. 770.
*Toxicity of Bile Acids. E. Gillert.—p. 779.

Glycolysis and Inhibition of Oxidation.—Bornstein and Ascher incubated goose blood for from two to three hours at 37 C. Glycolysis did not occur and the lactic acid showed a tendency to decrease rather than to increase. Glycolysis was observed only when the oxidation processes in the erythrocytes were disturbed; i. e., when the oxygen was consumed completely, when the blood was saturated with carbon monoxide, and in potassium cyanide, quinine and arsenous oxide poisonings. These observations are explained according to Meyerhoff's theory, which is based on a resynthesis of sugar from lactic acid, with oxidation of a small part of the sugar.

Formaldehyde Pigments.—Intravital disintegration of erythrocytes in mice produces changes in the cell structure of certain organs. These changes are characterized by small, blackish brown granules, which occur in sections stained with formaldehyde. Schwartz and Bieling injected mice and horse blood hemolysins, produced by immunization of rabbits, into mice, and studied the organs of the animals in regard to formaldehyde pigments. These were found in Kupffer's cells in the liver. It was also possible to produce formaldehyde pigments without disintegration of erythrocytes. The reaction seemed to stand in some relation to the shock produced by the simultaneous presence of antigen and antibody in the mouse organism. Granules of formaldehyde pigments found in the tissues of the human being may indicate intravital processes of protein decomposition, in conformity with the occurrence of hemosiderin in the decomposition of hemoglobin.

Effect of Atropine on the Motor and Secretory Functions of the Healthy Stomach.—On himself and on four other healthy persons Rall studied the effect of atropine given by mouth or in suppositories or injected subcutaneously. In sensitive persons even 5 drops of a 1:1,000 atropine solution had an inhibitory effect on the gastric secretion. The amount of gastric juice secreted and its acidity were decreased. Gastric motility was not decreased until as much as 20 drops of the atropine solution was given. Subcutaneous injection of atropine had a more marked effect than its peroral administration. Suppositories seemed to effect the secretion of gastric juice in the same manner as did peroral or subcutaneous administration, but inhibited motility less.

Acid-Base Balance in Continued Deprivation of Sleep.—In experiments on himself and on another healthy man Kroetz studied the effect of from fifty to eighty hours without sleep on the composition of the blood. The diet was normal and constant during the experiments. Lack of sleep caused a displacement of the reaction of the organism toward the alkaline side, which was shown in changes in the blood and urine reactions.

Toxicity of Bile Acids.—Gillert injected lethal doses of a large number of bile acids and acid salts into rabbits. The symptoms of poisoning were of central nature and were characterized by respiratory paralysis, injury to the blood vessels and convulsions. The toxicity of bile acids was approximately in inverse proportion to their surface activity.

Zentralblatt für Chirurgie, Leipzig

53: 2897-2960 (Nov. 13) 1926

*Constructive Criticism. R. Sommer.—p. 2897.
Pathology and Surgery of the Epipharynx. W. Dobrzaniecki.—p. 2898.
Etiology of Acute Serous Peritonitis. C. Prima.—p. 2904.
Simple Operation for Closing Salivary Fistulas. K. Saposchkoff.—p. 2905.
Apparatus for Steadying the Head in Operations on the Throat. D. Kulenkampff.—p. 2909.
Control of Temperature of Fluid in Intravenous Drop Infusion. Von Werthern.—p. 2912.
*Ileocecal Intussusception Mistaken for Pseudotumor. G. M. Gurewitsch.—p. 2913.
*Encapsulated Abscess Mistaken for Malignant Tumor. J. W. Silberberg.—p. 2915.

Constructive Criticism in Surgery.—Sommer suggests that surgeons adopt the practice of reporting secondary operations (as, for instance, resection of the stomach for peptic ulcer some years after a gastro-enterostomy, or removal of an implant) to the original operator, so that his history of the case may be complete and his statistics correct.

Ileocecal Intussusception Mistaken for Pseudotumor.—A girl, aged 19, complained of pains in the abdomen, of a dull, sometimes colicky nature, centering around the umbilical region. The onset dated five or six months back. There was vomiting of greenish masses, and constipation alternated with diarrhea. The diet, which seemed to have an influence in the beginning, was later without effect. In the last few months, blood was found in the stools. During the period of observation a tumor appeared and disappeared in different parts of the abdomen. As Gurewitsch was about to operate under the probable diagnosis of tumor of the omentum, the tumor "melted away" under the palpating hand. He now believed that he was dealing with a pseudotumor, produced by tonic contraction of the intestinal loops, caused probably by an enterocolitis. An exploratory laparotomy was performed with negative results. Recovery was smooth. Forty-five days later, the patient reported that for three weeks she had felt well, after which the pains had returned with hematemesis. A long, firm, mobile tumor was located in the cecal region. It remained in the same place for three days. At operation about 20 cm. of the lower end of the ileum was found to be invaginated in the cecum. Cecum and ileum had a common mesentery, which allowed the cecum to make wide excursions in the abdominal cavity. Gurewitsch's criticism of his handling of the case is that he did not pay enough attention to the one symptom which might have led him right—the occasional bloody stool.

Encapsulated Abscess of the Appendix Mistaken for Tumor.—A man, aged 65, sought advice in regard to a swelling in the right cecal region. It had existed only a short time and was still small, but, according to the patient's statement, it had increased quickly in size and he was rapidly becoming emaciated. Subjective symptoms were absent, and the digestion was normal. On examination a firm, nodular, mobile swelling, the size of an apple, was found, and neoplasm was

assumed. At operation Silberberg found a tumor occupying the entire anterior surface of the cecum and appendix and covered with omentum. Resection was done. The patient died of pneumonia two weeks later. The supposed neoplasm was found to be an encapsulated abscess of appendicular origin, with very thick walls. The case dates from the year 1900, when various modern aids to diagnosis were not available, but Silberberg points out that he should have recognized that the growth of the "tumor" was too rapid for a neoplasm and that the patient should have been kept under observation for a while, with control of temperature, etc.

Zentralblatt für Gynäkologie, Leipzig

50: 2929-2992 (Nov. 13) 1926

Diagnosis of Maternal and Congenital Syphilis. E. Kiene and A. Mahnert.—p. 2930.
*Cleanliness of Pregnant Women. P. Wirz.—p. 2939.
The Ninhydrin Flocculation Test in Pregnancy. A. Hain.—p. 2944.
Congenital Hydrops from Accessory Lung. G. Nordmann.—p. 2945.
Primary Carcinoma of the Fallopian Tube. K. Heil.—p. 2952.
*Determining the Position of the Head in the Pelvis During Parturition. A. Ostrčil.—p. 2958.
*Facies Myomica. B. Herzfeld.—p. 2961.

The Cleanliness of Pregnant Women and Its Importance for the Puerperium.—Wirz' conclusion, based on a study of 253 cases, is that the flora of the vaginal secretion at the end of pregnancy is of little consequence for the course of the puerperium, whether or not there are perineal wounds.

Determining the Position of the Head in Relation to the Pelvis.—Ostrčil describes Rubeška's method (ascribed in recent German literature to Piskaček) for following the progress of the head in the lower pelvis during labor. The principle is that, by discovering what part of the pelvis can still be palpated, one learns what part the head has not yet filled. In the lateral maneuver for external examination, the index finger and middle finger, placed a little lateral to the posterior end of the labia majora, press against the oncoming head as though one were trying to push this part of the perineum behind the corresponding ramus of the pubic bone. The side of the head, not the caput succedaneum alone, is palpated. When the furrow of the neck is in the middle line, a hand's breadth above the symphysis, and the head is still mobile, the head is above the pelvic inlet. A small segment of the head has entered the inlet when the furrow of the neck is the width of three fingers above the symphysis, the head being no longer mobile. When the furrow is two fingerbreadths above the symphysis and the occiput cannot be palpated, the head is engaged and it is possible to apply the forceps. The head is in the middle of the pelvis, when the furrow is only one fingerbreadth above the symphysis; the base and the chin are the only parts now palpable. It is in the pelvic outlet when it is impossible for the palpating finger to discover any part of it above the inlet and its place there is taken by a softer, more irregular part of the infant body. During the pains the head pushes the perineum outward, and even in the intervals between pains the head can be palpated there. Rubeška gives the following guides for use in internal examination: The head is above the pelvic inlet when the upper margin of the pubic bone can be palpated in front and the promontory behind and there is balottement of the head on pressure through the anterior vaginal vault. A small portion has entered the inlet when the convexity of the head projects into the pelvis and it is possible to palpate the hollow of the sacrum, but not the promontory or the upper margin of the symphysis. The head can still easily be pushed up above the inlet. When the latter condition does not obtain any longer, it may be known that the greatest circumference of the head is at the level of the linea innominata. The head is in the middle of the pelvis when the sacral hollow is filled, but the finger can be inserted anteriorly between the lower margin of the symphysis and the head. When the finger can be introduced only between the head and the posterior wall of the vagina, the head is in the pelvic outlet.

Facies Myomica.—In women with myomas, the face is usually well rounded; it may be hyperemic or anemic, the former more often, which Herzfeld connects with congestion from fatty degeneration and defective functioning of the heart. Emaciation is not frequent; even with anemia a certain pastiness of the face is noted. Herzfeld attributes the characteristic facies to ovarian dysfunction.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

70: 2639-2758 (Dec. 11) 1926

Religious Healing in America. G. van Rijnberk.—p. 2640. C'td.
Sarcoma of the Skin. J. H. Nienhuis.—p. 2644.
Roentgen Rays and Abortion. H. Lammers.—p. 2651.
*Treatment of Serous Pleurisy. J. de Hartogh.—p. 2655.
Interstitial Tubal Pregnancy. J. H. Engelkens.—p. 2661.
Treatment of Whooping Cough with Vaccine. L. H. van der Velde.—p. 2665.
*Ulcer of the Leg. M. N. Roegholt.—p. 2667.
Medical Legislation. A. Büchenbacher.—p. 2674.
Removal of Gallbladder and Excretion of Typhoid Bacilli. P. Ingelse.—p. 2682.
Studies in Heredity. I. Vriesendorp.—p. 2685.
*Hypnotic Treatment in Functional Disturbances of the Vegetative Nervous System. S. Koster.—p. 2689.

Treatment of Pleurisy with Effusion by Autoinjections.—In Hartogh's four cases of primary rheumatic and infectious pleurisy, subcutaneous injections of the patient's own serum considerably hastened recovery. Resorption took place in less than six weeks. Results were not obtained by this therapy in two cases of secondary pleurisy. The treatment must be started as soon as possible after the diagnosis has been made. The method is considered as a combination of vaccine and protein therapy.

Ulcer of the Leg.—In 1925-1926 Roegholt performed 125 Thiersch skin grafting operations in his treatment of ulcers of the leg among the native population of Semarang, Dutch East Indies. The time of treatment was reduced on the average by forty-five days. The size of the ulcers varied between 72 and 5 sq. cm. He describes the method and emphasizes the economic value of the skin graft to the patient.

Hypnotic Treatment in Functional Disturbances of Vegetative Nervous System.—Koster employed hypnotism and autosuggestion as the sole therapeutic measures in cases of disturbances of metabolism, internal secretion, heart function, respiration, gastro-intestinal system, bladder function, sex function and sweating, and in sleeplessness. The results were favorable in all the ten cases reported.

Ugeskrift for Læger, Copenhagen

88: 1103-1122 (Dec. 9) 1926

*Excretion of Phosphorus and Carbohydrate Metabolism. P. Iversen and A. Thisted.—p. 1103.
*Metal Salt Therapy. L. E. Walbum.—p. 1107.
Post-Graduate Instruction in America. K. Faber.—p. 1119.

Excretion of Phosphates and Carbohydrate Metabolism.—In studies of diabetic and nondiabetic patients Iversen and Thisted found that the excretion of phosphorus was greatest early in the morning, diminished during the day and increased toward evening. There was no regular difference between the excretion during the day and that during the night. Administration of insulin or sugar did not alter it in normal persons or in diabetic persons without acidosis. In diabetic patients with acidosis there was a marked decrease after administration of insulin or insulin combined with sugar. In the various stages of accidosis the excretion of phosphorus showed greater differences than did that of ammonia. The decrease in phosphorus excretion in acidotic patients was probably owing to the effect of insulin on the acetone bodies; there was combustion of the organic acids and the phosphoric acid was retained.

Combination of Serum Therapy and Metal Salt Therapy.—Continuing his experiments on mice, Walbum demonstrated that combined treatment with metal salts (manganese) and serum made it possible for the animals to overcome otherwise deadly injections of bacterial toxins (tetanus, dysentery and diphtheria toxins). The effect of manganese, i. e., its stimulating effect on the production of antitoxin, was dependent on an optimal, very slight concentration. Larger and smaller doses were without effect. The results indicate that in serum treatment of diphtheria and tetanus more favorable results should be obtained by simultaneous injection of a metal salt in a suitable concentration and dose.